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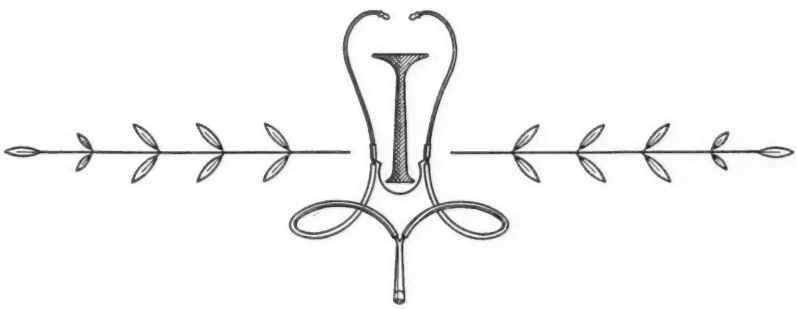

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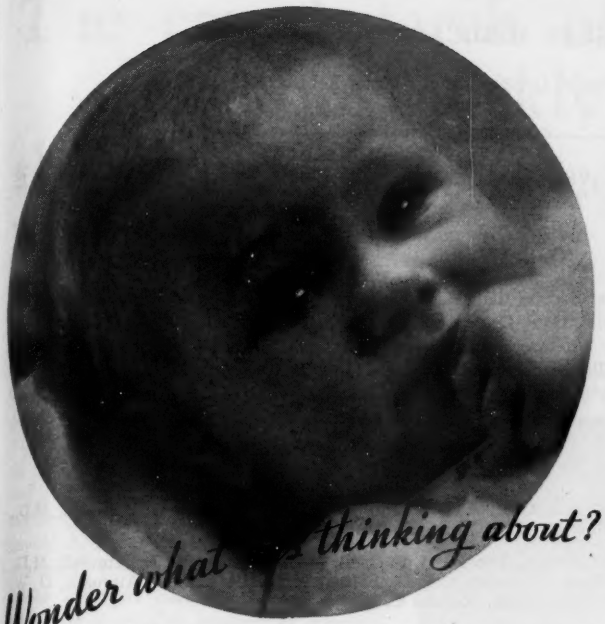

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The cereal-starch of PABLUM is more quickly digested than that of long-cooked cereals

FOR many years it has been the custom to cook infants' cereals one, two, and even three hours to increase their digestibility. The microscope (and clinical tests*) now prove that this bothersome and expensive long cooking is unnecessary with Pablum. For, being pre-cooked at 10 pounds steam pressure and dried, it is so well cooked that it can be served simply by adding water or milk of any temperature. Photomicrographs and also digestibility studies *in vitro* give evidence of this thorough cooking.

Fifteen cereals (both cooked and uncooked) studied microscopically were revealed as containing many starch granules, most of them massed into dense clumps. *Such unruptured clumps were never observed in hundreds of examinations of Pablum.* The latter consists, rather, of porous flakes which, like sponges, drink up liquids. Hence Pablum can be entirely saturated by the digestive secretions. This is borne out by studies of Ross and Burrill who found that the starch of Pablum is more rapidly digested than that of ordinary cereals cooked 4 hours.

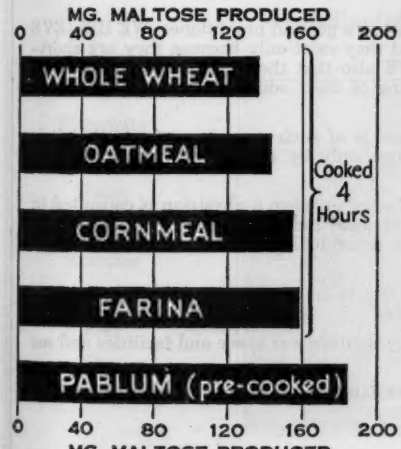

*Chart shows that maltose production is much greater for Pablum prepared with cold water than for other cereals cooked 4 hours. Ross and Burrill (Journal of Pediatrics, May 1934) conclude from this and from the total soluble carbohydrate formed that starch digestion of Pablum is more rapid than that of 6 other cereals.

140 X. STAINED (INSET) 290 X. STAINED

Large photomicrograph: Pablum mixed with cold water—portion of large flake. Pablum flakes are honeycombed with "pores" or air-spaces (note light areas A). This porosity permits ready absorption of digestive fluids by the entire flake. No starch granules are visible—they have been completely ruptured.

Inset: Farina cooked ½ hour—clump of cereal composed of unruptured starch granules. Note density of clump and lack of porosity. Many starch granules, such as are present in raw cereal, remain unchanged in form.

BESIDES being thoroughly cooked and readily digestible, Pablum supplies essential vitamins and minerals, especially vitamins A, B, E, and G, and calcium, phosphorus, iron, and copper. It is a palatable cereal consisting of wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa leaf, beef bone, brewers' yeast, and salt.

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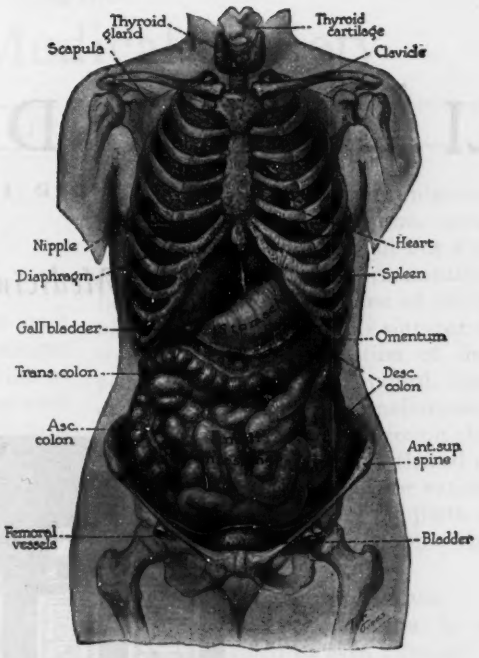

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DISEASES OF THE PERIPHERAL ARTERIES

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The growth of interest in the past ten years in diseases of the peripheral arteries constitutes one of the noteworthy events in medicine in this period. Before this time, care of patients with disturbances of the peripheral circulation was characterized in a large degree by lack of interest and information; sufferers, consulting physician after physician, received conflicting diagnoses and advice and little relief, which resulted in long periods of distress, exaggerated economic loss and, in many instances, eventual dismemberment. Out of the chaotic state described in brief have arisen studies in physiology, chemistry, roentgenology, pathology, allergy, and bacteriology which have enhanced our knowledge of, and contributed substantially to, the treatment of patients with diseases of the peripheral arteries. The contributions to the study of diseases of the peripheral arteries are extensive and impressive.

Orderliness in understanding is best served by a simple classification of diseases of the arteries, and such a classification is given in table 1. A summary of the important points of value in the differential diagnosis is given in table 2.

I may remark parenthetically that color of the extremities is of little diagnostic value, and that when too much stress is placed on this single manifestation, errors in diagnosis result. Thus vasomotor changes simulating Raynaud's disease may be a symptom of thrombo-angiitis obliterans,[5] and the excessive redness of the extremity in the dependent position in thrombo-angiitis obliterans and arteriosclerosis obliterans may be erroneously attributed to erythromelalgia.

Mechanical methods are likewise of little value in diagnosis. Such procedures serve their best function in physiologic studies and records of vascular disease, and as such they are worthy of great respect; careful examination of the patient and of his symptoms, however, are adequate for diagnosis in all but a small percentage of cases. Careful examination of patients with suspected disease of the peripheral blood vessels is an absolute sine qua non. This consists of careful palpation of the dorsalis pedis, posterior tibial, popliteal, femoral, radial, and ulnar arteries for pulsations, determination of the effect of posture on the color of the extremities, search for inflamed or thrombosed superficial veins and for varices, estimation of the temperature of the parts, and notation of atrophy, minor trophic changes, or frank gangrene.

RAYNAUD'S DISEASE

Diagnosis. The confusion in diagnosis, which is indicated by even a cursory survey of the literature on Raynaud's disease, seems to have a single basis: departure from the criteria stated by Raynaud. These criteria are: (1) intermittent attacks of changes of color of the acral parts, (2) symmetrical or bilateral involvement, (3) absence of clinical evidence of occlusive lesions of the peripheral arteries, and (4) gangrene or trophic changes, when present, limited in large degree to the skin. To these four criteria laid down by Raynaud we have added a fifth and a sixth; (5) the disease must have been present for a minimal period of two years, and (6) there must be no evidence of disease to which it could be secondary.[7] These additional criteria have been found necessary to exclude the secondary type of vasomotor disturbance.

ETIOLOGY: Ninety per cent of patients with Raynaud's disease are women.[4] They are ordinarily of asthenic bodily constitution, have unstable nervous reactions of a general nature, and are subject to states variously described as neurasthenia, chronic nervous exhaustion, psychoneurosis, and so forth. I feel that Raynaud's disease is a manifestation of inferiority of the sympathetic nervous system expressed by heightened or abnormal reactions to ordinary stimuli.[6]

Symptoms. In many instances the vasomotor changes are mild; pallor is most com-

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TABLE 1

CLINICAL CLASSIFICATION OF ARTERIAL VASCULAR DISEASE

Functional or vasomotor types	Local distribution	Vasoconstricting—type	RAYNAUD'S DISEASE
		Vasodilating—type	ERYTHROMELALGIA
	General distribution	Vasoconstricting—type	Primary or essential hypertension, early states.
		Vasodilating—type	Primary or essential hypotension
Organic types	Local distribution	1. THROMBO-ARTERIOSCLEROSIS OBLITERANS.	
		2. THROMBO-ANGIITIS OBLITERANS.	
		3. Simple thrombosis: embolism.	
		4. Arteriovenous communications (congenital, acquired).	
		5. Aneurysm, with or without thrombosis.	
	General distribution	ARTERIOSCLEROSIS	
		1. Primary	
		2. Secondary types due to hypertension, lead, and so forth.	

mon, representing the simplest phase. Cyanosis is the next most common, occurring usually following pallor but occasionally alone. Rubor is least common. The various colors of the involved parts do not uniformly follow one another with precision. Pallor may be transformed into cyanosis in an irregular, patchy manner, and may give way to rubor while pallor is still present in other acral parts. Occasionally, when these discolorations are provoked for study, one may see all phases at the same time, pallor, cyanosis, and rubor, on the digits of a single extremity. The digits uniformly appear normal between episodes of discoloration in the early stage before permanent changes have occurred. These episodes of discoloration of the digits are usually provoked by lowered environmental temperature, but they may be associated with emotional stress and occur during periods of anger, fear, weeping, and so forth.

As the disease advances, recovery between periods of discoloration is less complete; small necrotic areas, the size of a pin-head and representing capillary thrombosis, occur on tips of the fingers; scleroderma may appear. Absorption of the distal phalanges, leading to the appearance of clubbing of the fingers, may occur, or recurrent paronychial infections may take place.

The tendency of the condition to become progressively worse is usual, but not uniform. The condition may remain in the early stages for many years.

Physiology. The various colors of the skin of acral parts are explained by observation of the vascular structure of the nail fold. During the phase of pallor, the capillary loops are constricted and incompletely filled, and many are invisible; the blood is not flowing. When cyanosis supervenes the capillary loops have gradually dilated and an increased number are visible; the contained blood is blue and its flow intermittent. The surface temperature is low. If the dilation of recovery is excessive, rubor is present. The surface temperature is high, the flow of blood in the capillaries is rapid, and the color of the blood is red. The capillary blood pressure falls below normal during the stage of pallor and increases to above normal during the reactionary rubor.

Treatment. Residence in a warm climate and freedom from nervous and mental strain may cause amelioration of symptoms in cases uncomplicated by scleroderma, other trophic changes, or recurring infections. Surgical at-

TABLE 2

DIFFERENTIAL DIAGNOSIS OF VASCULAR DISEASE AFFECTING THE EXTREMITIES*

	Thrombo-angiitis obliterans	Arteriosclerosis obliterans	Raynaud's disease and similar conditions	Primary erythromelalgia
Age	Between 25 and 45 years	Between 55 and 85 years	Between 17 and 35 years	Between 30 and 50 years
Sex	Males, 99%	Males, 90%	Females, 90%	Females, 70%
Race	Jewish, 42%	Any	Any	Any
Pulsation of arteries	Pulseless, 50% Diminished, 45% Normal, 5%	Pulseless, 50% Diminished, 45% Normal, 5%	Normal	Normal
Claudication	Usually present	Usually present	Absent	Absent
Excessive rubor with dependency	Present	Present	Absent	Absent
Excessive pallor with elevation	Present	Present	Absent	Absent
Gangrene	Common	Common	Rare, of minor degree	Never
Rest pain	Usually very severe	Usually mild	Usually absent	Mild to severe
Type of rest pain	Sharp, stinging	Aching	Absent	Burning
Appearance of gangrenous ulcers	Moist, inflamed; discharging	Usually dry	Small punched-out Areas†	None
Superficial phlebitis	30% of cases	Absent	Absent	Absent
Roentgenogram of arteries	Usually negative for sclerosis	Usually positive for sclerosis	Negative	Negative
Color changes following exposure to cold	30%	15% to 20%	Always	Never
Temperature of extremities	Low	Low	Low	High during attacks
Edema	Frequent	Infrequent	Absent	Absent

*Percentages are approximate.
†In early stages.

tack on the sympathetic nervous system is, in our experience, the most satisfactory method of treating Raynaud's disease.[2] Selection of cases for operation depends largely on the clinical syndrome presented. Patients with the uncomplicated forms of the disease, that is, with recurrent episodes of discoloration of the digits, are selected for operation if the disease appears to be progressing or if annoyance from the condition warrants it. Occasionally operation may be recommended as a prophylactic procedure, for the results are excellent and complications which might ordinarily occur later are avoided. The results of a thoroughly executed operation in this type of case may be indicated by the word, cure.

When scleroderma, chronic discoloration of the digits, recurrent infection, or trophic changes are present, operation on the sympathetic nervous system is advisable if sufficient available vasodilatation can be demonstrated, for no other method of treatment of value is known to us. The results in this type of case are not as striking as in the uncomplicated cases, apparently because the disease in this stage is not due to a fault of vasomotor innervation alone; organic changes, partially or largely irreversible, are also present. However, cessation of distress and infection, improvement in the color of the digits, and softening of the sclerodermic skin are observed.

A few words should be said here about the confusing reports of the efficacy of sympathectomy in Raynaud's disease. In my experience incomplete results follow this surgical procedure when the disease is complicated or far advanced, or when sympathectomy is incomplete. The latter state is demonstrated by ability to induce sweating of the extremities, for when sympathetic control is completely removed, sweating cannot be induced by artificial means in the regions under consideration.

ERYTHROMELALGIA

Primary erythromelalgia is an extremely rare disease. The symptoms consist of attacks of burning pain in the extremities, accompanied by a sharp increase in the surface temperature, distention of the superficial veins, and relief of the distress on exposure to cold.[12] Gangrene does not occur. Treatment is usually unsatisfactory, although the local application of radium has been followed by relief in several in-

stances. Secondary types of erythromelalgia may be associated with peripheral neuritis, polycythemia, and thallium poisoning.

Burning paresthesia should not be confused with erythromelalgia. Patients with this condition complain of sensations of burning in the extremities, which, however, are cold.

THROMBO-ANGIITIS OBLITERANS

Etiology. The etiology of this condition is unknown, but the vascular changes are probably effected by bacteria or their toxins.[14, 13] Suspicion has recently been directed toward tobacco, but characteristic examples of the disease have been observed in non-smokers. Vasoconstriction and lowering of the surface temperature follow tobacco smoking,[11] but the assumption that tobacco smoking produces organic changes in the arteries is entirely unwarranted. The act of smoking doubtless contributes to the diminution of blood supply to the extremities; this appears to be the sole effect. Recent studies have indicated that patients with thrombo-angiitis obliterans are sensitive to tobacco in an allergic manner; this work, however, needs to be confirmed, and more evidence needs to be advanced that organic arterial changes can be produced by allergic reaction before tobacco smoking can be accepted as a true etiologic factor.[17]

Pathology. The pathologic changes consist of subacute, or chronic relapsing and patchy inflammation of the arteries and veins which leads to thrombosis of those vessels. These thrombi may be canalized. The regional nerves may be involved in the process of inflammation and degeneration.[14]

Arteriographically, the characteristics are patchiness of the disease, stages of involvement of arteries varying in degree, and evidence of collateral circulation (Figs. 1 and 2).[8]

Vessels involved. The arteries of the legs are involved in about seventy-four per cent of cases, the arteries of the legs and arms in about twenty-four per cent, and the arteries of the arms alone in about two per cent. Arteries of parts other than the extremities are affected very rarely, although the coronary,[9] renal, mesenteric, and cerebral arteries may be diseased by a process indistinguishable from that of thrombo-angiitis obliterans. Deep veins are frequently diseased although not extensively, and the superficial veins are inflamed and occluded during some period of the course of the disease in about forty-four per cent of cases.

Symptoms. All the symptoms of thrombo-angiitis obliterans are due to inflammation or thrombosis of the arteries and veins or to unstable vasomotor control resulting from this. Claudication is an aching or cramp-like distress occurring chiefly in the calves, which is characteristically brought on by continuous exercise and is relieved by rest. This distress does not result from standing, however long prolonged, sitting, nor recumbency.

Lowered surface temperature of the parts, small ulcers or frank gangrene, callousing of the skin over weight-bearing areas, and impairment and irregular growth of the nails, result from the constantly diminished blood supply.

Rest pain, so called to distinguish it from the distress of claudication, which is provoked only by exercise, results from death of tissue as in ulcers or gangrene, or from ischemic neuritis. In the former instance pain is localized in the area of the lesion, in the latter it is diffuse, involving comparatively large portions of the extremity; it may be associated with hypalgesia or hyperesthesia of the skin or with diminished tendon reflexes.

Abnormal pallor of the skin when the extremity is elevated, and constant abnormal rubor when the extremity is dependent, are entirely pathognomonic of occlusion of the main arteries. Local inflammation of the superficial arteries and veins causes redness and tenderness during the acute phases; when inflammation has subsided, the veins or arteries may be felt as hard cords beneath the skin. Vasospastic disturbances, consisting of pallor, rubor, and cyanosis in any combination, when intermittent as in Raynaud's disease, are indicative of an increased lability of the vasomotor mechanism resulting from inflammation in the arteries. Gangrene, when present, varies in extent and degree (Figs. 3, 4, and 5).

Clinical types. The compensated type of thrombo-angiitis obliterans is characterized by intermittent claudication which does not progress over a period of years. In the slowly progressive type, claudication occurs after a pro-

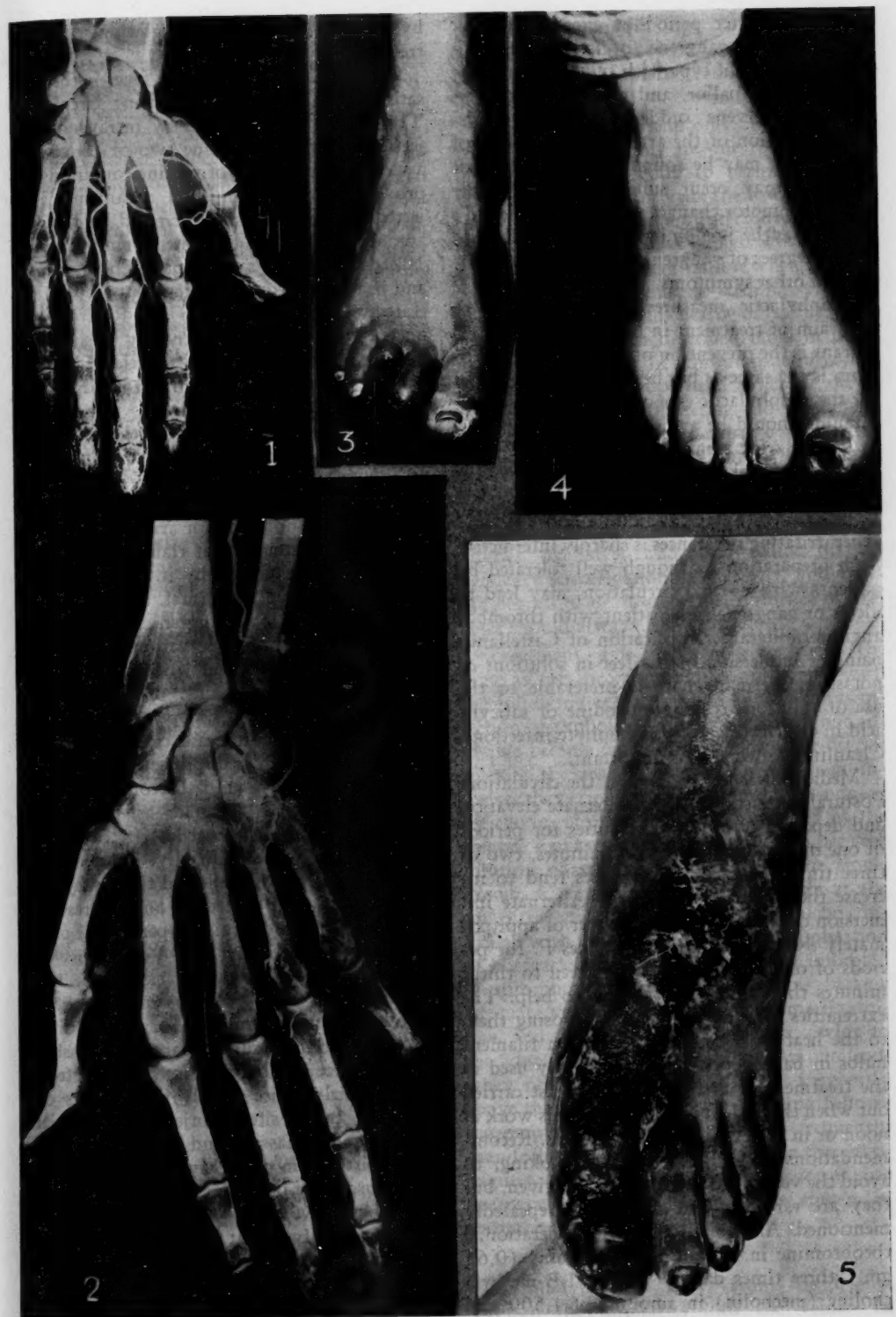
Fig. 1. Normal arteriogram. The regular course and contour of the arteries and the minimal collateral circulation may be noted.

Fig. 2. Arteriogram in thrombo-angiitis obliterans. The radial and ulnar arteries and the distal part of the interosseous artery have been occluded. Arterial blood is carried to the hand by a large collateral branch of the interosseous artery and by smaller collateral branches of the interosseous and radial arteries. Arteries of the palm and fingers are occluded in a patchy manner and the collateral arteries are increased in number.

Fig. 3. Gangrene of the second and third toes in thrombo-angiitis obliterans.

Fig. 4. Gangrene of the first toe in thrombo-angiitis obliterans.

Fig. 5. Gangrene of the entire foot in thrombo-angiitis obliterans.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gressively shorter period of exercise; trophic changes, frank gangrene, or ischemic neuritis may occur. In the type with sudden arterial occlusion, pain, pallor, and coldness of the extremity supervene suddenly; palpation discloses occlusion of the arteries. The arteries of other limbs may be found to be occluded, or occlusion may occur subsequently. In other types, vasomotor changes suggesting Raynaud's disease may be predominant, or ulcerations or minor degrees of gangrene may recur in the absence of other symptoms.

Prophylactic measures in treatment. The chief aim of treatment in thrombo-angiitis obliterans is the prevention of gangrene. The program is the same as has been so well publicized for the prophylactic care of the feet in diabetes. Trauma should be avoided, new shoes should be worn for only short periods until thoroughly broken in, protection from cold is essential, and application of strong ointments or solutions containing iodine, phenol, and other irritating substances is sharply interdicted. Such preparations, although well tolerated by patients with normal circulation, may lead to ulcers or gangrene in a patient with thrombo-angiitis obliterans. Application of Castellani's paint or immersion of the feet in solutions of potassium permanganate is preferable to the use of solutions containing iodine or salicylic acid in the treatment of trichophyte infections. Cleanliness of the feet is important.

Medical measures to increase the circulation. Postural exercises consist of alternate elevation and dependency of the extremities for periods of one minute each for fifteen minutes, two or three times daily. These exercises tend to increase the collateral circulation. Alternate immersion of the extremities in water of approximately 40 degrees and 105 degrees F. for periods of one minute each, for fifteen to thirty minutes three times daily, seems to help. The extremities may be warmed by exposing them to the heat from one or two carbon filament bulbs in bakers such as are commonly used in the treatment of arthritis. This is best carried out when the patient is resting from his work at noon or in the evening while he reads. Recommendations for the cessation of smoking, to avoid the vasoconstrictive effects, are given, but they are rarely carried out unless repeatedly mentioned. Alcoholic liquors in moderation,[15] theobromine in amounts of ten grains (0.65 gm.) three times daily,[20] or acetyl-B-methylcholine (mecholin) in amounts of 1,500 mg. by mouth,[10] increase the circulation to the extremities.

The artificial induction of fever is the most satisfactory method of increasing circulation. This is best accomplished by intravenous injection of typhoid vaccine two or three times a week.[10] An amount of vaccine containing approximately fifteen million organisms is injected the first time and increased by the same amount each subsequent time. A temperature of 102 degrees F. is satisfactory. Chills, nausea, and headache frequently occur but are well tolerated. Recently, Hermann and Reid have reported the use of an alternating positive and negative pressure to the extremities.[18] The apparatus is expensive, and, in our hands, the results have been disappointing.

Surgical measures to increase the circulation. The confusion that exists regarding the value of sympathectomy can best be clarified by a statement of what the operation accomplishes. The disease is not cured or arrested, superficial phlebitis and intermittent claudication are not significantly influenced by it, gangrenous tissue is not restored to normal, and the pain of ischemic neuritis and gangrene is not relieved. As a result of these observations, sympathectomy is never performed when pain is severe, when gangrene is present, or when trophic changes are marked. The operation has but a single purpose: to increase circulation to the extremities as much as possible. This is routinely accomplished by sympathectomy, and circulation remains as adequate as possible, an achievement only temporarily effected by other methods, such as artificially induced fever. Careful studies have indicated that sympathectomy is a valuable procedure, and the results in the direction of a diminished percentage of amputations are gratifying.[1]

The treatment of claudication. The newer tissue extracts almost always increase the distance an individual can walk before the distress of claudication occurs. Sharp and Dohme's tissue extract number 568 may be injected intramuscularly twice weekly in amounts of 3 c.c. Pain at the site of injection is alleviated somewhat by massage and by the application of a moist, warm pack. Myoston may be given intramuscularly in amounts of two c.c. two or three times a week, or by mouth[21] forty drops, three times daily, about three times a week. Unfortunately, at the present time, these preparations are expensive and frequently unstable. In the future they will certainly be prepared more

cheaply and in a standard and stable form.

The treatment of rest pain. Ischemic neuritis is characterized by constant rest pain when evidence of death of tissue is lacking. The pain is very resistant to treatment, and in this regard resembles that of diabetic neuritis. Rest, the ingestion of alcohol, sedatives, the intramuscular injection of tissue extract, the intravenous injection of calcium gluconate, injection of alcohol into, or section of, the peripheral sensory nerves, are poor makeshifts, but they constitute the best therapeutic agents available. Ordinarily the pain disappears after a distressing period of several months. When gangrenous ulcers are painful, relief frequently follows the local application of such anesthetic agents as diothane. The intravenous injection of typhoid vaccine frequently relieves pain.

Orthopedic treatment. Amputation is necessary when a digit or an extremity is hopelessly involved with gangrene, or when rest pain cannot be relieved by a prolonged trial of medical treatment. Amputation of fingers is uniformly successful. In my experience it has never been necessary to amputate a hand. Healing only infrequently follows amputation of the toes, and whenever such amputation is to be carried out, the surgeon must prepare the patient to accept amputation of the leg also if healing should not follow. Amputation is successful below the knee in about eighty per cent of cases.

Thrombo-arteriosclerosis obliterans. This is a name suggested to replace the terms, "endarteritis obliterans," "senile gangrene," "arteriosclerosis with occlusion," and so forth. It describes a clear-cut pathologic entity, as does the term "thrombo-angiitis obliterans," namely, arteriosclerosis and occlusion of an artery by a thrombus which occurs characteristically among people of advanced age.

Etiology. About as little and as much are known about the cause of this disease as is known about the cause of arteriosclerosis generally. For lack of better information, resort must be had to the conventional statement that it represents wear and tear on arteries, a process of aging.

Pathology. The characteristic pathologic findings in thrombo-arteriosclerosis obliterans are calcareous degeneration of the media, proliferation of the intima, and eventual occlusion of a lumen by a thrombus. Signs of inflammation and perivascular fibrosis are absent. The roentgenographic findings following intra-arterial injection of a radiopaque substance are: calcification of the arteries and shagginess of the lumen.

Symptoms. The symptoms of thrombo-arteriosclerosis obliterans are due to diminution in the supply of blood to peripheral parts, which almost uniformly are the lower extremities. These symptoms are intermittent claudication, coldness, excessive redness when the feet are dependent, excessive pallor when the feet are elevated, pain due to trophic changes, ischemic neuritis, and death of tissue. The symptoms have been described more in detail under the heading of thrombo-angiitis obliterans. Recurrent superficial phlebitis occurs in thrombo-angiitis obliterans alone, and the pain due to death of tissue that occurs in the last mentioned condition is more severe than in thrombo-arteriosclerosis obliterans. The characteristic findings on examination are: absence or diminution of pulsations in the peripheral arteries, excessive rubor and pallor on dependency and elevation, respectively, and varying degrees of death of tissue. Evidence of diabetes should always be sought.

Treatment. The treatment is essentially the same as for thrombo-angiitis obliterans, with the following exceptions: The intravenous injection of typhoid vaccine is ordinarily not advisable because patients of advanced age do not tolerate the reactions well. Fever which increases the peripheral circulation can be induced by the injection deep into the muscles of the thigh[22, 3] of two or three c.c. of a two per cent solution of sulphur in olive oil. The single drawback to this procedure is the pain at the site of injection, and this pain should be controlled with morphine and the local application of hot packs. Sympathectomy is not indicated in thrombo-arteriosclerosis obliterans because adequate vasodilation will not ordinarily follow, and the operative risk is higher, owing to the advanced age of the patients. Amputation, when necessary, is successful more frequently above the knee than below it. Healing following amputation of toes occurs less frequently than following a similar procedure in thrombo-angiitis obliterans. In my experience it has never been necessary to amputate fingers in thrombo-arteriosclerosis obliterans.

ARTERIOVENOUS FISTULA

Normally, blood flows from the arteries through the capillaries into the veins. In

arteriovenous fistula the blood, taking the course of least resistance, flows from the artery directly into the regional veins. These veins become dilated and tortuous and are frequently mistaken for varices. All patients with varicose veins should be examined with arteriovenous fistula in mind. Arteriovenous fistulas are of two types: congenital and acquired.[19] The latter ordinarily follows gunshot and stab wounds. In congenital arteriovenous fistula there is overgrowth of bones in a longitudinal direction, causing obvious lengthening of the limb. This occurs also in arteriovenous fistula acquired before the epiphyses close. Additional findings are: thrill and bruit over the acquired fistula, a higher surface temperature over the fistula than of the normal limb, and the occurrence of ulcers, distally, because of deficient blood. The most conclusive test is the demonstration of arterial blood in the regional veins. Occasionally, observation of red blood withdrawn from veins is sufficient to make a diagnosis, but usually it is necessary to determine the oxygen content of the blood. Surgery which is successful for the acquired type of fistula is usually of no avail for the congenital type because of the multiplicity of the communications. Under such circumstances snug bandaging of the extremity may force the blood to follow its normal path. Occasionally the dilated veins can be occluded chemically.

SUMMARY

Raynaud's disease, erythromelalgia, thrombo-angiitis obliterans, thrombo-arteriosclerosis obliterans, and arteriovenous fistula are definite clinical entities recognizable from a carefully taken history and by careful examination of the patients.

Rational medical, orthopedic, and neurosurgical treatment has accomplished much in the alleviation of symptoms and preservation of extremities in these conditions.

BIBLIOGRAPHY

1. Adson, A. W. and Brown, G. E.: Thrombo-angiitis obliterans; results of sympathectomy. Jour. Am. Med. Assn. 99:529-534 (Aug. 13) 1932.

2. Adson, A. W. and Brown, G. E.: The treatment of Raynaud's disease by resection of the upper thoracic and lumbar sympathetic ganglia and trunks. Surg., Gynec., and Obst. 48:577-603 (May) 1929.

3. Allen, E. V.: Discussion. Proc. Staff Meetings of Mayo Clinic. 6:161 (March 18) 1931.

4. Allen, E. V. and Brown, G. E.: Raynaud's disease affecting men. Ann. Int. Med. 5: 1384-1386 (May) 1932.

5. Allen, E. V. and Brown, G. E.: Erroneous diagnosis of Raynaud's disease in obliterative vascular disease (thrombo-angiitis obliterans); vasomotor disturbances simulating Raynaud's disease. Am. Jour. Med. Sc. 174:319-329 (Sept.) 1927.

Allen, E. V. and Brown, G. E.: Raynaud's disease; a clinical study of one hundred and forty-seven cases. Jour. Am. Med. Assn. 99:1472-1478 (Oct. 29) 1932.

7. Allen, E. V. and Brown, G. E.: Raynaud's disease; a critical review of minimal requisites for diagnosis. Am. Jour. Med. Sc. 183:187-200 (Feb.) 1932.

8. Allen, E. V. and Camp, J. D.: The value of arteriography; report of a case. Radiology. 22:678-683 (June) 1934.

9. Allen, E. V. and Willius, F. A.: Disease of the coronary arteries associated with thrombo-angiitis obliterans of the extremities. Ann. Int. Med. 3:35-39 (July) 1929.

10. Barker, N. W.: Results of treatment of thrombo-angiitis obliterans by foreign protein. Jour. Am. Med. Assn. 97:841-843 (Sept. 19) 1931.

11. Barker, N. W.: Vasoconstrictor effects of tobacco smoking. Proc. Staff Meetings Mayo Clinic. 8:284-287 (May 10) 1933.

12. Brown, G. E.: Erythromelalgia and other disturbances of the extremities accompanied by vasodilatation and burning. Am. Jour. Med. Sc. 183:468-485 (April) 1932.

13. Brown, G. E.: Thrombo-angiitis obliterans; Buerger's disease. Surg., Gynec., and Obst. 58:297-311 (Feb. 15) 1934.

14. Brown, G. E., Allen, E. V., and Mahorner, H. R.: Thrombo-angiitis obliterans: clinical, physiologic and pathologic studies. Philadelphia, W. B. Saunders Co., 1928, pp. 40-72.

15. Cook, E. N. and Brown, G. E.: The vasodilating effects of eythl alcohol on the peripheral arteries. Proc. Staff Meetings Mayo Clinic. 7:449-452 (Aug. 3) 1932.

16. Goldsmith, Grace A.: The vasodilating effects of acetyl-B-methylcholine. Proc. Staff Meetings Mayo Clinic. 9:337-340 (June 6) 1934.

17. Harkavy, Joseph, Hebald, Selian, and Silbert, Samuel: Tobacco sensitiveness in thrombo-angiitis obliterans. Proc. Soc. Exper. Biol. and Med. 30:104-107 (Oct.) 1932.

18. Herrmann, L. G. and Reid, M. R.: Pavaex (passive vascular exercise) treatment of obliterative arterial diseases of the extremities. Jour. Med. 14:524-529 (Dec.) 1933.

19. Horton, B. T.: Some medical aspects of congenital arteriovenous fistula; report of 38 cases. Proc. Staff Meetings Mayo Clinic. 9:460-463 (Aug. 1) 1934.

20. Newell, C. E. and Allen, E. V.: The peripheral vasodilating effect of theobromine given orally and intravenously. Jour. Tennessee Med. Assn. 27:291-296 (Aug.) 1934.

21. Roth, Grace M. and Barker, N. W.: Observations on the use of skeletal muscle extract in treatment of intermittent claudication. Proc. Staff Meetings Mayo Clinic. 9:390-392 (June 27) 1934.

22. Waller, L. M. and Allen, E. V.: The use of sulphur for the production of fever in peripheral vascular diseases. Ann. Int. Med. 5:478-485 (Oct.) 1931.

A REPORT OF A CASE OF HODGKIN'S DISEASE PRESENTING THE PEL EBSTEIN TYPE OF REMITTENT FEVER WITH CHILLS AND A GENERALIZED PRURITIS*

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The diagnosis of Hodgkin's disease presenting glandular enlargement, whether grossly or roentgenologically, and with a definite pathologic picture on microscopic examination of a biopsy specimen presents little difficulty. The symptoms of Hodgkin's may be varied even in the types with the glandular enlargement and cause some doubt as to the diagnosis clinically. Subtract from these varied symptoms the enlargement of the glands and the value of the biopsy specimen and add to the picture fever and chills with a generalized itching of the skin and the case assumes a more complicated nature and involves a wider scope in the differential diagnosis. The type of the disease to which I have reference was first described by Murchison in 1870 and by Pel and Ebstein

*Read before the Harvey County Medical Society at Newton, Kansas, January 7, 1935.

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working independently in 1887. There have been occasional reports in the past twenty years. I was able to find eleven cases published since 1916 and their bibliographies are appended to this case report. The condition is not common.

The Pel Ebstein type of Hodgkin's disease is a slight advancement of the stage known as the larval stage and presents a syndrome of a very marked similarity. It is characterized by a remittent type of fever that may or may not alternate with chills, by abdominal cramps, general malaise and cachexia. There may be a complaint of chest pain. There is occasionally presented a very severe pruritis without visible lesions. (This is recognized to be a very early symptom of the lymphoblastoma group.) There is no noticeable glandular enlargement and although there may be a few shotty nodes palpable the biopsy is without confirming evidence other than being negative which tends to confirm rather than to contradict the diagnosis, since it is unusual to have the section show the usual pathologic picture.

The clinical picture all in all is one of sepsis without the patient appearing as ill as his symptoms and findings would indicate. The fever may mount to 105 degrees preceded by a hard chill, the expression is anxious, the eyes open and the mental state is clear. There may be some bronzing of the skin. The cramps in the abdomen may cause the patient to double up in bed. There is no rigidity of the musculature. The spleen may be palpable. The febrile periods may continue for three or four weeks and gradually drop to within normal range and remain only slightly elevated for ten to thirty days and then gradually mount to the higher levels. During the remissions, which occur daily, the temperature may go as low as ninety-five degrees to rise again within the next few hours. There may be two or three chills during the day and night. With such a picture one is apt to consider the acute febrile diseases and most certainly should do so. However, when the various clinical and laboratory methods fail to establish any of them, the Pel Ebstein syndrome should be considered.

The case report will be given in detail.

Case 35208 Halstead Hospital. Mr. C.H.F. 54, white male, American, entered this hospital October 29, 1933, complaining of: "Shooting pain in the left chest and lower back; skin itches all over;" Family history irrelevant.

Social history: A farmer, married, wife and five children living and well. He was born in Kansas and has spent all but four years of his life here. He was in Louisiana between 1915 and 1919.

Personal history: Usual childhood diseases. Influenza 1918. No other serious illness.

Present illness: He considered himself perfectly well until the fall of 1931 at which time "just felt no good." In January 1932 he became weak and noticed stiffness through the hips. In February 1932 he noticed intense pain in the lower back while riding in a wagon. The pain was intensified by each jolt. In March 1932 he noticed soreness of his arms and thighs and pain when he moved them. He went to a doctor who told him he had fever. The soreness was described as a cramp. He was unable to perform his usual duties by this time. In the summer of 1932 he noticed redness of the lateral surface of the palm of the left hand. This traveled up the arm and across the chest. There was no associated pain or itching. Both hands swelled some but they were not painful. He began to lose weight. In September 1932 he noticed that the soreness was gone from the arms and legs. In January 1933 he began to have shooting substernal pain radiating to the left middle chest. It was not associated with exercise or dyspnea. In February 1933 his legs began to itch. There was no lesion visible and he states that he thought it was either oak or ivy poisoning. He tried home remedies without relief. The itching persisted. In June 1933 he complained of pain in the right lumbar region. The pain was throbbing in nature and heat relieved it somewhat. In July 1933 it seemed like the pain in the back went to the belly. A drink of cold water would cause him to double up with a cramp. This persisted for six weeks with cramps every day, so much so that he was unable to eat. In September 1933 he began to have hot cramps that came on after eating, beginning in the left flank and radiating to the left groin, but never going down the leg. He was bothered with some gas, belching and bloating. There was no vomiting. The pain in the chest persisted. There was some numbness of the hands and feet especially if they became cold. In October 1933 he began to have chills, sometimes as many as two a night. There was no regularity. They occurred during the day or night. "If they had been regular I would have thought it was the ague." Quinine had no effect. The pains in the chest

persisted, there was some backache associated with tiredness, weakness, and a worn out feeling. The itching became generalized.

INVENTORY OF SYSTEMS AS OF OCTOBER 29, 1933

Head: Negative. Cardio Respiratory: There is some cough from a tickling in the throat since the "flu" 1918. Shooting substernal pain radiating to the left mid chest. No pleurisy or hemoptysis. No dyspnea or edema. Pain not associated with exertion. Gastro Intestinal: Occasional hot cramps in the belly the past three months. Appetite good, all foods agree. Thirty pound weight loss in the past eighteen months. Genito Urinary: Some difficulty in controlling the bladder after impulse to urinate. Always has impulse. Nocturia 3-5x for the past two years.

SALIENT FEATURES OF THE HISTORY

Substernal pain, tired and weak, cough, fever and chills, lumbar pains, itching without lesions, cramps, chronicity, incapacitation from usual activities and a thirty pound weight loss.

PHYSICAL EXAMINATION

A fairly well developed, poorly nourished, pale, white male of stated age, approximately five feet and nine inches in height, weighing one hundred eighteen pounds, lying quietly in bed apparently not as ill as his history would indicate. The skin is moist and of fine texture. There is a bronzing of the skin from the waist down. There are a few scratch marks. The hair is fine, sparse and black. The speech is distinct and the mental state is clear.

Head: Normal contour. Eyes: The pupils are regular but unequal, the right 2.5 mm. the left 4 mm. The right reacts eighty per cent to light and the left twenty-five per cent. The accommodation is one hundred per cent in both. The movement, sclera, conjunctiva and fundi are negative. Ears and Nose: Negative to external examination. Mouth: The teeth are badly worn, several missing and some are carious.

Neck: There are no palpable glands. The thyroid is palpable.

Chest: Rickety (pigeon type). The expansion is free and equal. There are no changes to percussion or auscultation. The diaphragmatic excursion is good.

Heart: Negative. B.P. 106/70. P. 96, regular. T. 102.6.

Abdomen: Domed, tympanitic and tense. Small ventral hernia just above and to the right of the umbilicus. There is a relaxation of both inguinal rings with some puffiness of these when the patient stands. There is no rigidity or tenderness. The spleen is palpable on deep inspiration, but not markedly enlarged. The liver dullness extends to the fourth intercostal space on the right. The margin is not palpable on inspiration. There is bronzing of the skin of the lower abdomen extending onto the thighs. A few scratch marks are visible.

Rectal: Negative. The prostate is small.

Extremities: Negative. There are palpable popliteal, cubital, axillary and inguinal glands varying from 0.5 to 1 cm. in diameter, moveable, firm and discrete.

Reflexes, Sensations and Gait: Negative.

SALIENT FEATURES OF THE PHYSICAL EXAMINATION

The patient is apparently not as ill as his symptoms would indicate. Emaciation, pallor, bronzing, a domed, tympanitic abdomen, palpable spleen, palpable inguinal, popliteal, cubital and axillary glands and scratch marks as evidence of itching. T. 102.6 P. 96. B.P. 106/70.

LABORATORY: Urine negative. Sp. Gr. 1.014, alkaline, clear, Blood: Hb. 75 per cent. W.B.C. 12,500, R.B.C. 3,760,000. Differential count showed a polymorphonuclear leucocytosis by the Arneth Schilling Index.

Seg.	Mono.	Lymph.	Stab.	Juv.	Eos
76	0	15	8	0	1

Blood smear: Negative for malaria. Blood Culture: Aerobic and anerobic repeatedly negative. Blood Wassermann: Negative. Agglutination for *B. Typhosus* and *Br. Abortus* negative.

Special Procedures: Therapeutic test with quinine failed to control chills. Residual Urine: 5 cc. Soft rubber catheter passed easily. Spinal Puncture: Fluid clear, very low pressure 1 cm. of water. The Toby and Queckenstedt tests were negative. No globulin. No cells. The Wassermann reaction was negative. X-ray chest: Essentially negative except for two indistinct shadows 2.5 cm. diameter in the right mid-hilus. X-ray spine: Antero-posterior and lateral views negative. Barium meal: Negative. Barium enema: Negative. Flat plate of the Abdomen: Negative. (This was taken in hopes that we might find some retroperitoneal glands or a calcification of the adrenals.) Biopsy: A small gland in the right inguinal region was removed. Pathologist's report: The specimen

consists of a bit of whitish tissue approximately 1 cm. in diameter which cuts fairly firm but has no definite characteristics. Section stained by hematoxylin and eosin shows a sclerosing inflammatory type of reaction characterized by a decrease of lymphoid cells and an increase of stroma. There is noted an occasional eosinophil, however, nothing definite could be diagnosed from this section. Impression: Non-Specific-Inflammation.

SALIENT FEATURES OF LABORATORY FINDINGS

An enemia with polymorphonuclear leucocytosis. Negative serology. Soft shadows in hilus. Urine negative. Biopsy negative. Lumbar puncture negative.

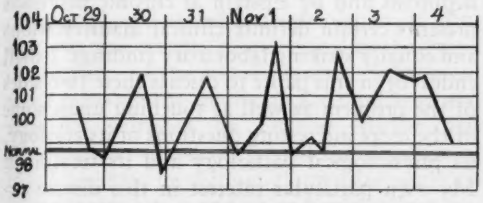

Fig. 1. Temperature variation during first week.

PROGRESS

The patient was in the hospital on two occasions. On his first admission and during his fourteen day stay he complained of considerable itching and weakness with pain across the upper sacrum which he described as being sharp and jumping and worse when the temperature was elevated. His admission temperature was 100.2 degrees. It showed a daily variation between 96 degrees and 103.2 degrees with usually one or two chills daily. There was a chilly sensation oftener. He was dismissed November 11, 1933 and advised to take x-ray treatments. November 15, 1933 he received his first treatment. On November 23, 1933 he complained of a more severe itching. On December 23, 1933 he was seen in the out-patient department complaining of the pain in the back and itching. During the consultation he was suddenly seized with a chill and was admitted a second time. The chill was followed by a temperature of 105.4 degrees. His hospital stay this time was forty-five days and during this time he ran a remittent fever varying between 100.2 degrees and 105.6 degrees. The itching continued and was partially controlled by atropine. The fever gradually remitted until the time of his dismissal when it was 97.2 degrees. He was advised to continue his x-ray therapy. This he did on January 11, 1934. On January 26, 1934 he reported that he continued to have the chills and fever but that he felt some stronger. The itching and backache persisted. He received x-ray treatments in May, June, July and August each of 600 R. units over the entire body and now reports that he is feeling fine, that he has regained his sense of well being and all of the weight that he had lost. He is working at light work around the farm and reports that he is too busy to return for a check up.

From the available literature I believe this to be a case of Hodgkin's disease of the Pel Ebstein type with possible bone marrow and retroperitoneal involvement.

SUMMARY

A case of Hodgkin's disease presenting unusual features is reviewed in detail. Diagnosis was made clinically. The patient is alive and working after one year. No other treatment than x-ray was used. A bibliography of similar cases as are available in the Cumulative Index from 1916 to 1934 is appended.

BIBLIOGRAPHY

1. Murchison, C. Tr. Path. Soc. London 21: 372. 1870. A Case of Lymphadenoma of the Lymphatic System, Spleen, Liver, Lungs, Heart, Diaphragm and Dura Mater.

2. Pel, P. K. Berl. klin. Wchnschr. 22:3. 1885 Zur Symptomatologie der sogenannten Pseudoleukamie.

3. Pel, P. K. Berl. klin. Wchnschr. 24: 644. 1887. Pseudoleukamie oder chronicher Ruckfallifieber.

4. Ebstein: Berl. klin. Wchnschr 24: 656. 1887. Das chronische Ruckfallifieber ein neue Infecktionskrankheit.

5. Whittington: Quart. J. Med. 9: 83. Jan. 1916. Hodgkin's Disease, acute with involvement of internal glands and relapsing pyrexia.

6. Weber. F. P. Practitioner 99: 62. July 1917. Pel Ebstein recurrent pyrexial type of Hodgkin's Disease (Lymphogranulomatosis maligna).

7. Weber, F. P. & Dove, P. W. Br. J. Dermatol. 30:15. Jan. Mar. 1918. Pruritis in Hodgkin's Disease, a case of lymphogranulomatosis pruriginosa.

8. Cheney, W. H. & Bogart, F. B. J. Tennessee M. A. 13: 281. Dec. 1920. A report of Pel Ebstein Case of Hodgkin's Disease.

9. Lemon, W. S. & Doyle, J. B. Am. J. M. Science 162: 516. Oct. 1921. Clinical Observations of Hodgkin's Disease with special reference to Mediastinal involvement.

10. Cautley, E. Br. J. Child. Dis. 19: 185-189. Oct. Dec. 1922. Pel Ebstein type of Hodgkin's Disease.

11. Pancoast, H. K. & Pendergrass. Am. J. M. Science 168: 326. Sept. 1924. Herpes Zoster in Hodgkin's Disease.

12. L'Esperance, E. L. J. Immunol. 18: 133-139. Feb. 1930. Pel Ebstein's Syndrome of Tuberculous origin. (Role of avian tuberculosis.)

13. Krumbhaar, E. B. Hodgkin's Disease of Bone Marrow & Spleen without Apparent Involvement of Lymph nodes. Am. J. Med. Science 182: 764. 1931.

14. Sears, T. P. & Black, W. C. Colorado Med. 29: 208-210, May 1932. Hodgkin's Disease without lymphadenopathy.

15. White, P. A. & Senty, E. G. J. Iowa Med. Soc. Feb. 1933. Hodgkin's Disease, Report of Cases, including one with Pruritis and the Pel Ebstein Type of Relapsing fever.

16. Rimbaud. L. Anseline, G. Martin Ravorie & Guilbert, H. L. Arch. Soc. d. sc. Med. de Montpellier 14: 310. June 1933. Malignant granulomatosis of Typhoid form. A case.

17. Weill, O. Rahier, C. & de Walsche, L. Bruxelles Med. 14: 94-102, Nov. 19, 1933. Malignant Lymphogranulomatosis simulating Undulant Fever.

18. Longcope, W. T. & McAlpin, K. R. Cecil's Text-Book of Medicine, Third Edition, 1934. Hodgkin's Disease.

CHRONIC LIPOID NEPHROSIS†

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Few diseases have excited more interest and controversy in recent years than chronic nephrosis. Some authors such as Epstein have been impressed by the frequency of this condition, whiles others, Christian for example, are very skeptical as to its existence as a definite clinical entity. A third group, while apparently admitting its existence, stress nevertheless its comparative rarity and warn against the increasing frequency with which this disease is being diagnosed. Another interesting controversy is whether this disease has only recently been discovered by Munk and by Epstein, or whether it has been observed and treated by physicians for a generation or more.

This latter question is easily answered. Osler in the first edition of his Practice of Medicine published in 1892—forty-two years ago—gave us the following picture of "chronic parenchymatous nephritis":

"The urine is, as a rule, diminished in quantity, often scanty . . . The albumin is abundant and may amount to one-half or one-third of the urine boiled.

"Dropsy is a marked and obstinate symptom of this form of Bright's disease. The face is pale and puffy and in the morning the eye-lids are edematous. The anasarca is general and there may be involvement of the serous sacs . . . The dropsy is peculiarly obstinate.

"There are instances of this form of nephritis in which the heart is not enlarged. . . Occasionally, in children, even when the disease has persisted for two years, the symptoms disappear and recovery takes place."

While this description of Osler's fits certain cases of chronic nephritis in which edema and albuminuria are outstanding symptoms yet I wish to stress his observation that some of these patients show no enlargement of the heart and that recovery may take place. These two features alone are quite at variance with the accepted picture of chronic nephritis, a disease which leads almost invariably to cardiac enlargement and just as invariably to death with evidence of preceding kidney insufficiency.

Christian in his excellent critique of nephrosis read before the Association of American Physicians in 1929 points out that many cases originally diagnosed as chronic nephrosis later showed cardiac enlargement, high blood pressure, and after death were proved by autopsy to have a typical glomerulo-nephritis. This clinical picture, the nephrotische Schrumpfniere of the Germans has led to much confusion both in diagnosis and in terminology, and every physician who has studied kidney disease has encountered these cases which have caused him to change his original diagnosis of chronic nephrosis and even to wonder in his perplexity whether a true nephrosis exists. However, when his patient recovers completely his confidence in the existence of this definite syndrome returns as well.

The disease described by Munk as lipoid nephrosis and by Epstein as chronic nephrosis presents certain definite clinical manifestations and equally striking laboratory findings. I shall endeavor in this paper to discuss these two sides of the problem as well as touching upon some of the more interesting questions of its etiology, its physiological pathology and its treatment. My own particular interest in this disease extends over a period of some fifteen years or more during which I have run what is perhaps the usual gamut of experiences and mental reactions. I began by doubting its existence altogether. Then I saw what seemed to be two typical cases and fired by this experience began to wax enthusiastic on the subject and to diagnose the condition with increasing frequency. Then came a setback administered by some of my pathological colleagues, who demonstrated to my unwilling eyes that some of my cases of nephrosis showed at autopsy a chronic glomerular nephritis. After being submerged for a time in a sort of medical atheism on this subject, my faith was again restored by seeing three patients recover completely from this disease. This disease is certainly uncommon, it has unquestionably been diagnosed too freely and too loosely. yet it does apparently occur and its clinical course as well as its different prognosis entitle it to continued study and investigation.

One of the most striking features of this disease is the edema which the patient presents. This edema involves the eyelids, face, pleural and peritoneal cavities, the genitalia in males and particularly the legs. In one patient the edema of the legs was so marked and so painful that we punctured the skin in several places with a hypodermic needle and as a matter of interest placed both feet in pans and measured

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†Read before the meeting of the Kansas City Southwest Clinical Society, October 8, 1934.

the fluid trickling down from the minute punctures. From this patient we collected 250 c.c. per hour in each pan for six hours, a total of 3,000 c.c.

Another interesting feature of these patients is the absence of any elevation of the blood pressure, as well as the absence of any cardiac enlargement. This finding, which was noted long ago in these cases, and which is in marked contrast to the striking elevation in blood seen in glomerular nephritis, is understandable when we consider the pathological physiology of the two conditions. There is excellent evidence that we have in chronic glomerular nephritis a widespread involvement of the arteriolar system. Gowers in 1876, fifty-eight years ago, demonstrated that the retinal vessels in chronic glomerular nephritis were markedly constricted and stated that the degree of constriction was directly proportional to the degree of elevation of the blood pressure. Subsequent work, notably the studies on the capillaries and arterioles initiated by Otfried Müller, has shown rather conclusively that the elevation of blood pressure in chronic glomerular nephritis is produced by a widespread generalized arteriolar constriction. Indeed, in acute nephritis, as Clawson has shown, it is sometimes possible to demonstrate arteriolar constriction in the vessels of the nail-bed before albumin or casts appear in the urine. Pathological studies also demonstrate that there is widespread arteriolar disease.

In chronic nephrosis by contrast we see the lesions mainly in the tubules, in the parenchyma of the kidney and in the cells of other organs, notably the liver. The arterioles are spared and as there is no constriction of these vessels, the blood pressure does not rise. In the absence of any elevation of the blood pressure, there is no great increase in the work of the heart and consequently no cardiac enlargement.

In summary, then, the outstanding clinical signs of chronic nephrosis are edema with a normal blood pressure and a normal sized heart.

The laboratory findings in chronic nephrosis are equally distinctive. The urine contains a very large amount of albumin and may become almost solid on boiling. On microscopic examination, by contrast with glomerular nephritis, casts may be absent or present only in small numbers. In passing we should like to call attention to the fact that casts are normally present in the urine and can be demonstrated by the proper technique, a fact that we should always keep in mind before frightening a patient in whom we have discovered an occasional urinary cast on microscopic examination.

The blood chemistry in chronic nephrosis is one of the striking findings and has been the subject of endless studies and speculations. First and foremost, we find normal values for nonprotein nitrogen, urea, creatinin, uric acid and sugar, all in marked contrast to advanced chronic glomerular nephritis with its nitrogen retention. The blood cholesterol, however, is markedly increased, and this is one of the most striking and best known chemical findings in this disease. The cause of this phenomenon remains, despite much work, entirely unknown. The subject of cholesterol metabolism is at present very poorly understood, and until we know more of the origin of cholesterol and of its fate in the body, it is idle to speculate on its behavior in disease.

The other striking finding in the blood chemistry of this disease is the diminution in the amount of serum albumin and serum globulin and commonly an inversion in the ratio of the two. While normally the ratio of serum albumin to serum globulin is as five to three in disease the ratio may be for instance four to four or three to five. This diminution of serum albumin and serum globulin which is intimately concerned in the production of edema immediately suggests two possibilities, either we have a diminished amount through loss in the urine, or through a failure of the mechanism by which these substances are produced. Here again, to be frank we must admit that we do not possess evidence conclusive enough to decide this question, although recent investigations have shed a certain light on the subject.

The work of Whipple explains the inversion of the serum albumin-serum globulin ratio. This observer has shown that serum globulin is produced more rapidly than serum albumin and if we deplete the supply of both by the expedient of bleeding, the serum globulin regenerates more rapidly than the serum albumin. These observations of Whipple have been repeatedly confirmed.

The observation that the serum albumin and serum globulin are markedly lowered in this disease has stimulated attempts to reproduce a disease picture of chronic nephrosis by the method of plasmapheresis. This process consists in removing the blood collected in citrate solution, centrifugalizing the citrated blood, pouring off the supernatant fluid, and

reintroducing the red blood cells in salt solution. In this manner the number of red blood cells is kept high, while the amount of blood proteins is lowered. This procedure has been employed in many experimental laboratories including our own. It is very striking how difficult it is to produce a low blood protein, by this apparently formidable measure, which in practice consists in changing the blood of a dog every two or three days. When this procedure is carried out this fall in blood proteins is followed by a generalized edema. It is striking, also, in our experience that this method of lowering blood proteins by mechanical removal does not produce any increase in the blood cholesterol. It is also noteworthy that if the bleedings be discontinued in many instances only for two or three days, the blood protein regenerates very promptly, the serum globulin being formed more rapidly than the serum albumin. This rapid formation of blood proteins after their mechanical depletion is to me strong evidence that there is deficiency in the formation of these blood proteins in chronic nephrosis.

Another striking finding in many of these patients has been the lowered metabolic rate, a feature stressed particularly by Epstein, as is well known. He has argued from this finding that the disease is primarily a thyroid deficiency.

The fact that the basal metabolic rate is often markedly diminished is unquestioned. To my mind, however, it is more probable that this finding is related to the marked edema that the patient shows, which may interfere with the radiation of heat and also perhaps in calculations which are based on standard body weights. At any rate, there are two unsurmountable objections to the assumption that hypoactivity of the thyroid produces chronic nephrosis. First, if thyroid deficiency is the cause of chronic nephrosis, it should be invariably present in myxoedema. This has not been the case in my own experience, and there is little substantiation for this view in the literature. Second, if thyroid deficiency produces chronic nephrosis, the administration of thyroid extract should promptly lead to improvement or cure of the condition. While Epstein has reported some good results following the use of thyroid extract, most observers have not seen much effect from it in the treatment of chronic nephrosis. As far as I am personally concerned I have seen none whatever.

Again, in summary, we may say that the outstanding laboratory findings are the marked albuminuria, the low blood proteins often accompanied by an inversion of the serum albumin and serum globulin ratio, the increase of blood cholesterol and the diminished metabolic rate.

What is the etiology of this unusual disease picture?

There is a very considerable and influential group, in which perhaps the pathologists dominate although it includes many eminent clinicians, who insist that this disease is nothing but a chronic glomerular nephritis with unusual clinical findings. They point out that the great majority of cases coming to autopsy show chronic glomerular changes. Although there have been cases reported in literature in which the patients fail to show these changes at autopsy, these critics retort by saying that the pathologist's technique was not good enough in these cases, or else he overlooked these changes. To the objection that some of these patients have recovered, this group answers that such individuals have not been followed long enough, and possibly their recovery is only apparent and not real. As far as my own experience is concerned I have studied thirteen cases diagnosed as chronic nephrosis during the past ten years and so far as I have been able to ascertain only three of these patients have died. Two of these individuals who had suffered from chronic nephrosis for a period of three years showed at autopsy chronic glomerular lesions which the pathologist, however, did not think dated nearly as far back as the onset of the illness. The third patient showed no chronic glomerular change but an acute glomerular nephritis. I have kept in touch with three patients of this series who so far as I can tell are perfectly well at the present time, one of them being dismissed from the hospital eight years ago, and the other two, three and three and a half years ago. Instead of assuming that chronic glomerular nephritis produces this condition, it is quite reasonable to me that the disease begins rather independently and that the kidney changes develop in the course of years. Such a sequence of events has, I think, been rather clearly proved in hypertension, gout and lead poisoning, to mention a few outstanding examples.

Disturbances of the thyroid gland, as already mentioned, have been suggested as possible causes of chronic nephrosis. I have also dis-

cussed two strong objections to this point of view. To my own mind the key to the etiology of this disease probably rests in the disturbance of cholesterol and of blood protein metabolism. We have recently carried out some observations that may have a bearing on this point. We studied the nitrogen balance of two patients on several occasions. It is very interesting to note that each patient had an optimum limit for the utilization of nitrogen. If the nitrogen intake was low, the patient excreted more nitrogen than he ingested. When the nitrogen intake was increased to a certain point, the patient excreted just as much as he took in. If, however, an excess of nitrogen was given above this level, all the excess nitrogen was promptly excreted. In other words, the patient unlike a normal man or especially a growing youth was unable to store nitrogen. It is also interesting that the two patients studied had different levels of nitrogen balance. These observations are not only of some interest from the etiological standpoint but also from the practical standpoint, as will be mentioned later.

If this inability to store nitrogen is a fundamental pathological defect in this disease, it suggests very strongly that a defect in this regulation plays an important role in the production of the disease. Recent work in Cushings Clinic, and by Dr. Collip and his associates apparently shows that there is an active principle in the anterior lobe of the pituitary which has a profound effect upon nitrogen balance, and that the injection of this extract in experimental animals leads to a storing up of nitrogen. While there seems to be a tendency at the present time to blame too many things on the pituitary gland, yet this is a lead which seems to me should be at least followed.

Other organs have been incriminated in this process, one of which is the liver. Here again there is suggestive evidence that there is disturbance in the physiology of the liver. The importance of the liver in the formation of cholesterol and of blood proteins suggests strongly that it plays an etiological role in the production of this disease.

Considering the therapy in chronic nephrosis we are forced again with the problem so frequently encountered in the practice of medicine, the treatment of a disease whose causation we do not understand. However, if every practicing physician waited until the etiology of a certain disease was cleared up before attempting to treat patients with this disease, medicine would have absolutely made no progress. Also the etiology of many diseases has been cleared up after therapeutic measures had been discovered.

Epstein, who deserves the credit for having called this syndrome to the attention of American physicians, advised the use of thyroid extract and of high protein diets in the treatment of this disease. He reasoned that the low metabolic rate called for the administration of thyroid extract and that the loss of protein in the urine was an indication that these patients should be fed large amounts of protein. Most observers are skeptical about the effect of thyroid extract. The use of a high protein diet in these patients has, however, certainly been a boon, but it should be emphasized that an excessively high protein diet is not only difficult to take but is apparently of no especial value since the excess of protein in the diet is not utilized and is promptly excreted in the urine. In our own experience there is no merit in increasing the protein above that of a normal diet. However, when we realize that in the past these patients were put on excessively low protein diets, we must be grateful to Epstein for having insisted on high protein diets, which at least were infinitely better than the low protein diets that were at that time in vogue. In two patients we have obtained what seemed like very striking results in giving high carbohydrate diets. Metabolic studies also indicate that high carbohydrate diets have a definite effect in sparing protein. It is certainly much easier to ingest than high protein diets, and as one of our patients with a very marked edema remarked, it was a wonderful thing to be told to eat all the candy she wanted to reduce her weight, since she had been afraid all of her life to eat candy for fear it would make her fat.

To restore the depletion of blood protein, we have resorted regularly to blood transfusion without in any instance seeing bad results. This in our view is an important therapeutic procedure. For the marked edema these patients show, we have commonly employed novazurol or some other diuretic without at any time seeing any deleterious effect. We have also employed intravenous glucose. Where the legs have become excessively swollen, we have not hesitated to puncture the skin and allow the fluid to run out.

This disease, as indicated, still remains to some extent shrouded with mystery, but with less mystery than formerly, thanks to the in-

terest which it has excited during the past decade. Some have suggested that the interest it has created is out of all proportion to its importance. To this we answer first that the intensive study of this disease has led to a much clearer understanding of some allied conditions, notably edema anemia and cardiac disease, and secondly that this disease while uncommon is of supreme importance to the patient suffering from it. What we need is not less study of the syndrome but more.

THE TREATMENT OF BURNS*

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INTRODUCTION: The following discourse is believed to be a didactic and yet practical review of the modern treatment of burns even though personal additions are allowed to hold sway in certain of the principles in treatment.

This field of therapy is of the utmost importance in the every day practice of the doctor as is evidenced by the interest which has been evinced in this field by the profession, by the industrial world, and by the public. Lack of proper scientific treatment has in the past resulted in complications, deformities, and even deaths in what appeared in the initial stages to be burns of trivial degree. It is absolutely imperative that we give these cases the same careful consideration and apply the same aseptic surgical technic as we do in any other branch of general or orthopedic surgery. Ignorance of principles which can obviate all the undesirable consequences enumerated is but a mark against not only the individual practitioner but the entire profession.

HISTORICAL: Almost every clinician has some sort of an idea on the treatment of burns. It is therefore highly essential for the individual to know something about the background in the history of these conditions, so that he may realize that progress has been such as but to terminate in what is at present the most widely accepted method, the so-called modern treatment.

The remedies which have been advocated in the treatment of burns are legion as one can see if any older text book be perused. In the beginning of the nineteenth century, clinicians were still using a hodge podge of varying procedures which were not far removed from the lards and aromatic oils of Hippocrates. Even, however, as early as Ambrose Pare, we note the attempt to use some precautions in the treatment of all wounds. This possibly marked the first step towards the next goal which was the introduction of antisepsis into the routine. Pirrie of Aberdeen, after listening to Lister on the value of antisepsis, began to use phenol in the dressing of burns. The antiseptic principle was also advocated by Morris in this country.

During the nineteenth century, the general treatment of the patient was stressed, and it was realized that this was just as important or even more important than the local treatment. In 1844, Parker pointed out the importance of treating the shock which accompanied the condition, even though this was not universal until 1880. In 1823, Cumin, and in 1862, Baraduc, pointed out the presence of the increased viscosity of the blood in burns; but this again was not universal knowledge until the beginning of the present century. Several decades ago, much work was done on the value of blood letting. At first this was a shot in the dark, but later it was proven that the toxin released in burns was somehow bound up with the red blood cell. With this knowledge, Dr. Bruce Robertson of Toronto established his life saving though heroic measure of exsanguination—transfusion, a method which is used to this very day in burn toxemia of grave character.

The local treatment of a burn must have always been in terribly poor shape since each individual author described so very many different applications and stressed none of them. With Passavant, we have the introduction of the continuous submersion bath to replace the older traditional methods of occlusive dressings of all kinds of oils and ointments. In 1887, Copeland popularized the open air treatment, forming enclosures about the patients. No dressings at all were applied, the area being exposed to the air. However, this method was soon forgotten only to be again brought to the foreground by Sneve in 1905. From then on until 1914, these two schools of thought occupied the attention of the profession because of their antagonism. In 1914, Barthe de Sandfort introduced parrafin wax or "ambrine" as a dressing for burns. The enthusiasm for this soon abated when the end results of cases were determined. In 1925, Davidson of Detroit published his method of treating the burned area

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†Orthopedic Surgeon, Kansas Crippled Children's Commission.

with tannic acid. End results with this system have been of such a nature as to revolutionize the treatment of burns, so that today this is the common method of treatment at least in this country.

PATHOLOGY: The usual definition of a burn is that it is a coagulation necrosis of the structures involved, and that it gives rise to the same phenomena of inflammation as are encountered in wounds. In fact, in Stewart's text book of Surgery burns and inflammation have been compared as is shown in the following table.

BURNS	INFLAMMATION
1. Erythema (first degree)	Hyperemia
2. Blistering (second degree)	Exudation
3. Charring, Phlegmon (third degree)	Necrosis
4. Suppuration	Suppuration
5. Cicatrization	Repair

No matter how one tries to liken a burn to a wound it is important to remember that there is an essential difference. A surgical wound is a solution in the continuity of a given structure, and most of its attributes are of a local character. A burn, however, is a solution of the vital continuity of the structure; but not of its physical or mechanical continuity. It therefore has an entirely different pathological syndrome, in which general features rather than the local area are stressed. When the slough has separated and the granulating area exposed, then and then only is it comparable to a surgical wound: and the treatment then follows that of a surgical wound.

The pathology may be considered under a series of headings which follow the progress of the patient in chronological order.

1. Surgical shock: usually over with in the first twelve hours.
2. Primary shock or dehydration or anhydremia, appearing within the first twenty-four to forty-eight hours.
3. Toxemia — usually appearing after twenty-four to forty-eight hours.
4. Sepsis—usually appearing after the sixth to eighth day.
5. Repair or granulation of the wound.
6. Cicatrization or scar formation.

SURGICAL SHOCK: The initial shock which accompanies the condition is in no way different from shock accompanying other traumatic conditions. The factor which determines its onset and degree is the extent of the burn rather than its depth. It appears within a few minutes after the accident and is recognized by the usual signs—rapid, feeble pulse, subnormal temperature, low blood pressure, pallor, sweating, and thirst. It causes only a very small percentage of the mortality due to burns. It is usually over with in twelve hours, and therefore if it is prolonged beyond this time we are dealing with something other than surgical shock.

PRIMARY SHOCK OR DEHYDRATION. The local changes in the skin and other structures are evidenced by a destruction of the outer layers by coagulation or charring as a direct result of the heat. This is an unimportant detail. The important aspect to consider is that just beneath this destroyed area there is a zone in which the change is largely one of pathological physiology. It consists mainly of a change in the permeability of the capillaries. There is a lowering of the absorbability and an increase in the ability of the cells to allow fluid to leave the blood vessels; and this, coupled with the excess of blood sent to the burned area as a result of the exposure to heat, gives rise to the loss of an enormous amount of fluid. This disturbance in capillary bed equilibrium persists for twenty-four to forty-eight hours depending upon the severity of the burn and accounts for the occurrence of the anhydremia.

Underhill has shown that this anhydremia or blood concentration is due to plasma depletion. Chemical determinations of the exudate found in burns show that it is almost identical in composition with the blood plasma. Examination of the blood also reveals the marked concentration to be evidenced by an increase in the red cell count and a rise in the hemoglobin content. These are simple clinical laboratory determinations and should be made routinely in all cases. They account for many of the cases being reported with excellent blood counts and yet their conditions may be very critical. Underhill and his coworkers have shown that in animals burned over one-sixth of the body surface, the amount lost was over seventy per cent of the total volume of the blood. They reasoned that in clinical cases this may represent the limit to which the organism can give up its reserve water content without losing the required volume of the blood.

These phenomena are entirely due to physico-chemical forces; the water equilibrium between the blood stream and the tissues is the resultant of two osmotic forces. The tissue colloids tend to pull the water from the blood stream into the tissues; while the blood col-

loids tend to pull the water from the tissues into the blood stream. When the plasma of the blood escapes in the area which has been burned, the osmotic pressure of its remaining cellular content is greatly increased, as the amount of colloid per unit volume is increased. This results in the water being drawn into the bloodstream to re-establish the blood volume: but the result is a dehydration of the tissues. If this water which is drawn into the bloodstream would remain there, probably no ill effects would follow; but, as we have seen, it is promptly poured out again. The result is again an increased concentration of the blood, and again we have the same cycle repeated. When the tissues have no more water to give up, the viscosity of the blood increases. Finally it is so great as to cause by its mechanical resistance a faltering of the heart due to overload. This has been called profound primary shock by some authors although this is far from being an appropriate term.

After twenty-four to thirty-six hours, the capillary openings close, and the water equilibrius is re-established provided an abundance of fluids is provided during this period. Since the blood is thick and sticky, it flows slowly through the capillaries and is quickly robbed of its oxygen content, causing inadequate oxygenation and consequent partial asphyxiation. The total plasma proteins and the total plasma volume drops during the first twenty-four hours.

TOXEMIA: About twenty-four hours after the accident most severe burns enter into a toxic stage which is peculiar to this type of injury. The onset is characterized by a clearly defined set of symptoms—high temperature, vomiting, drowsiness, muscular twitchings and convulsions. These apparently are the result of the action of the toxin upon the central nervous system; the action, however, is not limited to this system alone. Post-mortem examinations reveal widespread evidence of its effects in the form of focal necroses and petechial hemorrhages in nearly all of the parenchymal organs of the body. The post-mortem picture resembles very closely that produced by the diphtheria toxin.

The source of the causative toxin has been the object of much investigation and certain facts are definitely known. It arises in the burned area and is absorbed and distributed to all parts of the body by the blood stream. Experimentally, it has been shown that excision of the burned area, which ordinarily would result in a toxemia, entirely prevents the onset of the toxic stage. Experiments with dogs have been carried out where a burn inflicted on one of the dogs in parabiosis caused a toxemia in the other dog. By severing the circulatory connection within twelve hours after the burn, the evidence of toxemia was lessened in the unburned dog and increased in the burned dog. Blood from this burned animal when transfused into a normal dog brought on this peculiar toxic stage.

This is all that is definitely known. It is believed that this is a histamin-like substance. In the blood stream, this toxin appears to be intimately associated with the red blood cell as is evidenced by the fact that if we remove blood from the patient we can temporarily lessen the toxemic symptoms.

When the toxemia increases, the loss of plasma proteins may continue even though the volume of the plasma remain normal. In such cases, the loss of plasma proteins occurs throughout the capillary bed of the entire body, owing to the alteration of its permeability produced by the absorbed toxin (Davidson and Mathew). Coincident with the loss of plasma at the site of the lesion, there is a marked loss of sodium chloride. This can be estimated by a determination of the blood chloride, and an effort should be made to replace it. In this connection, it has been shown that an animal can lose and compensate for a loss of from three to thirty-six per cent of the total sodium chloride content in the blood.

This toxin production continues from one to eight days, until there is the separation of the slough from the living tissue. Then there follows the next pathological syndrome.

SEPSIS: The stage of sepsis overlaps in its onset somewhat the end of the toxemic period. Infection of some degree is present in every burn in which there has been any considerable destruction of tissue. It is impossible to so treat a burned area by applications as to keep it aseptic. The dead skin, moistened with dressings or underlying secretions, forms an ideal nidus for bacteria, and in it they live and grow.

Locally, the onset of sepsis is evidenced by foul smelling, purulent discharge, and this is usually accompanied by fever. Septicemia may occur and terminate fatally. This septic state lasts until all the sloughs have separated, and free drainage is established. This usually occurs about the end of the second week. Therefore,

one of the essentials is to encourage this separation of the sloughs as early as possible after the end of the second week. Occasionally, the sepsis persists even after the separation of all the sloughs. In such cases, amyloid disease is prone to occur. After toxemia, sepsis is the most important cause of death.

REPAIR: With the separation of the sloughs, the stage of sepsis usually ends and the stage of repair begins. The burn has now been transformed into a healing ulcer, and its pathology and progress is no different from any other surgical granulating wound, except that the patient has passed through a series of pathological syndromes and is by now in a moderately exhausted state both mentally and physically.

The stage of repair continues until the wound is completely covered with epithelium. This process, however, is slow, and if the area is large, it may take months and months for it to heal if it ever does so completely. It must also be remembered that as long as the wound is open the dangers of sepsis and toxemia are still present, tending to further lower the condition of the patient. Added to this is the ever-present problem of dressings. Keeping these facts in mind, it will readily be understood why early removal of the sloughs and grafting are advised by the writer.

CICATRIZATION: The granlation tissue which covered the wound before the area was epithelialized turns into scar tissue. This as it is formed, tends to shorten or contract. If the wound is in the vicinity of a joint, we get the formation of a deformity or contracture. There may also be an effect on all the surrounding tissue, including the blood vessels and nerves. A general law may be enunciated that the longer the area goes uncovered, the greater is the amount of granulation tissues formed, and therefore the greater the resulting contracture or deformity.

HEAT REGULATION: One pathological factor has not been mentioned. The skin is normally a most efficient insulator or heat regulator of the body. The destruction of a large area of skin means that there is a marked body loss of heat through radiation, and this increases the shock unless means are taken to prevent this. Even Passavant and Copeland learned that it was important to prevent this loss of heat by radiation.

This completes the pathological syndromes which occur in a burn. They have been discussed in chronological order with the exception of the last paragraph. The treatment of a burn (besides prophylaxis) will resolve itself into the treatment of each pathological syndrome.

THE EMERGENCY TREATMENT: A burn is an emergency condition just as much as an acute appendicitis or an acute osteomyelitis—every hour counts. When a burn is first sustained it is impossible in the majority of cases to determine with any reasonable accuracy the degree of burn. It is not until the dead epithelium has separated that the depth of the burn can be accurately determined. Moreover, it is the extent of the burn rather than its depth which accounts for the greater portion of the mortality due to burns. Therefore all burns are considered as serious burns at the onset of the condition.

FIRST AID TREATMENT: While it is true that in the majority of cases we shall not be able to control the first aid treatment, still the industrial concerns and the nurses can be instructed not to apply any dressing at all. If a first aid dressing is required then, as has been pointed out by Lee, a strong brew of tea makes a tannic acid solution of from five to seven per cent, and this may be applied. The application of the strong brew of tea means that it is possible to begin the tannic acid treatment no matter where you are, immediately after the burn has been sustained.

All cases of severe burns should be treated in the hospital; it is poor economy to try and treat these cases at home. We believe that every hour counts in the treatment of these cases, hence institute the proper measures at once. No effort is made to classify burns according to their degree or to calculate the area involved in percentage. All attempts to do so have failed (to the sad experience of the patient). If the pain is severe (the usual story), morphine may be administered at once if available.

THE INITIAL TREATMENT: When the patient has been admitted to the hospital, we must first of all treat the pain and shock. If the patient's respiratory rate is not too low, morphine in large doses is administered the minute he reaches the ward (if he has not already received this in the first aid treatment). Just what is then done depends upon the age of the patient and the extent of the burn. In cases where the burn is so extensive that it is almost certain the patient is going to die, the patient is placed in a tub bath of two to three

per cent saline at a temperature of one hundred degrees; the tub is padded with blankets and with sheets. The patient's excreta are simply drained from the tub and fresh saline added. This forms the most comfortable means of treating dying patients or patients who have received so extensive a burn that no matter which position we place them in they are still lying upon a large area which has been burned. In cases where the clothes of the patient have become charred right with the tissues and it is difficult to remove the same without causing a great deal of pain, again the bath is most useful as a preliminary. Otherwise the patient is placed in bed, with the burned area not touched by any dressing or bed clothes. Immediately a cradle with electric lights is placed over the patient. The temperature of this should be ninety-eight to one hundred degrees. This prevents the undue loss of heat by radiation.

THE TREATMENT OF SHOCK: We must distinguish the initial shock which accompanies these conditions from the so-called primary shock which is due to the dehydration of the tissues and the anhydremia with its consequent load on the heart. It appears within a few minutes; in most cases can be overcome by morphine, heat and fluids; and by twelve hours has disappeared. The head of the bed is lowered. The morphine is repeated often enough and in large doses to keep the patient free from pain; always remembering to discontinue its use as promptly as possible because the consequent depression of respiration is a factor in the not uncommon complication of pneumonia or massive collapse. Morphine should not be withheld on account of the youth of the patient. There is nothing which can supplant it in the treatment of surgical shock.

Stimulants in the form of caffeine or adrenalin may be given hypodermically, although hot strong coffee per rectum serves admirably to provide both heat and stimulation. If hemorrhage has occurred, then without hesitation a blood transfusion is given. Even without hemorrhage, Davidson of Detroit has been giving a blood transfusion as a prophylactic measure against shock in a patient who appears to have a lethal burn. Then if shock appears, the transfusion is repeated in twenty-four hours. All of us are finding this a potent factor in treatment.

THE TOILETTE: As soon as the patient is under the influence of the morphine and has had a chance to get warmed up under the cradle, our attention is directed towards the local lesion. Any dressings which may have been applied are removed, and if any grease or oil has been applied to the burned surface this is removed as quickly and gently as possible with ether. Soap and water serve well, but benzol or ether may be required to remove greases. If the clothing must be cut away, this is best done in the saline bath as has been mentioned.

Vesicles that have already formed are cut away with sterile scissors and the outer layers of epithelium which are loose are pealed off. This is important because unless the badly damaged outer layers are removed, the tannic acid will not coagulate the deeper layers. In the course of the day, if additional vesicles form, they should be treated in the same manner. Gross dirt is removed from the wound. It is unnecessary to scrub the area energetically with antiseptics; moreover, this is productive of shock. No anaesthetic should be required in this procedure; it is in fact dangerous because it may increase the shock and further concentrate an already concentrated blood. Once the patient is prepared, he is left unclothed for the entire period of treatment until there occurs the separation of the slough and the area is converted into a granulating wound.

THE TANNIC ACID TREATMENT: Just as soon as the area has been prepared an aqueous solution of tannic acid (five per cent for children and ten per cent for adults) is sprayed over the entire area which has been burned. These solutions are stronger than that originally recommended by Davidson, but the object is a more rapid tanning of the dead tissues. The more rapidly this is accomplished the less the production of the toxin and also the less the dehydration. The spray from an ordinary atomizer is satisfactory. The tannic acid corrodes the metal parts of the atomizer, and therefore special ones with rubber and glass parts have been devised.

If the burn has involved the face, most clinicians do not use the solution although no one has reported injurious effects of tannic acid on the cornea. Instead a tannic acid jelly has been prepared which can be spread over the face in a thin layer. This, as it dries, leaves a firm coagulum over the burned area. This jelly is also used occasionally in certain other inaccessible areas difficult to treat with the spray. Petrolatum is smeared about the eyelids, nostrils and lips to prevent them from becoming uncomfortably dry and stiff. Also in burns of the perineum, it is smeared about the external genitalia

and anus.

Glover uses a tannic acid jelly which he prepares with a tragacanth base about the consistency of ordinary lubricant jelly; and is made so as to yield a five per cent tannic acid preparation. Tannic acid ointments made up with a petrolatum or lanolin base are not satisfactory because not enough of the tannic acid actually reaches the burned area, and the oily base prevents the coagulum being dried by the air. There are disadvantages to the jelly also; but it does form a coagulum almost as quickly as the tannic acid spray.

ACTION OF TANNIC ACID: The use of tannic acid marks the most important advance made in the history of the treatment of burns. In most cases it entirely prevents any serious degree of toxemia; but toxemia can occur even with tannic acid in the more severe burns. This it is claimed is due to the mechanical difficulty of tanning a deep burn throughout its entire thickness. In addition to its marked value in the treatment of toxemia, tannic acid has certain other advantages which of themselves are sufficiently great. It has first of all a selective action on the burned skin. Only the dead skin is tanned. The surrounding living tissue is not affected. Tannic acid precipitates proteins only in faintly acid media: dead tissues are faintly acid, living tissues faintly alkaline, and for these reasons the action of tannic acid is limited to the necrotic tissues. Secondly, for a considerable time it obviates the need for any other dressing. The dead skin is transformed into a black, dry, painless sheet of leather, which effectively protects the underlying living tissues. The tanned area begins to separate about the seventh to tenth day, and until this occurs usually no dressing is required. This freedom from the exquisitely painful ordeal of dressings is to be appreciated by those who deal very much with burn cases. Thirdly, many burns are completely epithelialized when the tan separates. This is true of all of the more superficial burns. The deeper burns are of course not epithelialized and present a granulating surface when the tan separates. Fourthly, the dry leathery sheet into which the necrotic skin is transformed is a most unfavorable nidus for bacteria. Infection is therefore very much reduced.

It is important that the solution be freshly prepared, since in standing the tannic acid turns into the much less active tannous acid. The ordinary tannic acid powder is used with water. The tannic acid is sprayed over the burned area every hour for the first twenty-four hours. In very extensive burns the spray is made every fifteen minutes during the first few hours. At each spraying a thin film only is spread over the burn since any greater quantity will only run off. If the burned areas are well coagulated and dry at the end of twenty-four hours, tannic acid may be omitted. Nothing further is done for the next few days, the patient of course being unclothed and under the electric cradle bath or canopy. When skin surfaces must come in contact, as between the arm and chest wall, a sterile towel is placed between the two. If any part of the area must come in contact with the bed, a sterile sheet or sterile towels should be placed under the part. In large burns, if the saline bath is not used, it is most satisfactory to have sterile sheets placed under the entire body.

It is possible at this stage that surgical debridement is the best treatment for the very deep, small burns, as this will give a surface suitable for grafting at the earliest possible moment and cut down the incidence of infection and toxemia; though in some cases adding to the shock. If the extensive debridement seems indicated, a general anaesthetic should be given. Complications in the nature of lacerations, fractures, etc., must be sought for and treated at this time. Attention is also paid to special areas as the eyes, which if burned may require special treatment by a colleague. Anti-tetanic serum should be administered routinely in all of these cases. After the area has been tanned, the patient is left alone; no dressings are applied; and heat radiation is combatted with the electric cradle. Pathological syndromes are treated as they occur.

TREATMENT OF THE DEHYDRATION: One can detect this dehydration if repeated red blood counts and hemoglobin determinations are made. This is treated by the administration of plenty of fluids; and they may be given by mouth, water, and fruit juices. In the more severe cases this will be insufficient. Therefore it is wise to begin with a good sized blood transfusion; and this may be well followed by the administration of normal saline intravenously. Fluids may also be given per rectum in the form of normal saline, soda bicarbonate solution, or both. If this is continued for any length of time, tap water is worth while as a substitute to prevent irritation. The amount of fluid recommended by authorities is about one hundred cubic centimeters per kilogram

of body weight (one litre per twenty-five pounds of body weight). Again, the repeated red blood count and hemoglobin determinations indicate whether or not the dehydration is in advance of the fluid administration. The observation of the hemoglobin percentage is a good prognostic agent; it has been found that an increase of forty per cent, if maintained for any length of time, is incompatible with life. When it reaches one hundred and twenty-five per cent of normal value, life is precarious.

Administration of fluids may be overdone; therefore I do not agree with Harris and Gallie of Toronto in the continuous intravenous administration of fluids. During the first forty-eight to seventy-two hours, the patient is not able to handle quite as large a quantity of fluids as we formerly believed. The occurrence of oedema is a signal to discontinue the administration of fluids. The nurses are instructed to report pitting at once. During this early period we have noted that there is an increased permeability of the capillary bed, not only at the site of the burn but throughout the body. There is also a renal depression, which may be due to oedema of the tubules. This renders the individual unable to excrete large quantities of urine. This renal depression seems to last for about three days, after which the urinary output increases markedly. Therefore in the laboratory investigation, the total twenty-four hour urine output is an important check. While the kidney output is low, the administration of glucose or chlorides is of great value in making it rise. If in doubt transfuse the patient instead of giving so much fluid.

TREATMENT OF THE TOXEMIA: Prophylaxis is the most important item under this head and we know of no better method than that of converting the mass of dead burned tissue into a hard leathery mass from which absorption is difficult.

Because of the extent of most burns, their site, or the shocked condition of the patient, excision of the burned area is not feasible as a general measure unless the area is small.

With the use of tannic acid, the cases which develop toxemia are not numerous, unless the extent of the burn is so great as to bring the case among the hopeless class. But where the toxemia does develop, even with the tanning method, the situation is grave.

The only method which has had any results in the saving of life after severe toxemia has set in is that of exsanguination—transfusion. This method was developed in Toronto by Dr. Bruce-Robertson. It has been noted that the toxin is closely associated with the red blood cell. Therefore as much blood as possible is removed at the height of the toxemia and this is replaced with normal blood. The operation is carried out in three stages: firstly, a stage in which as much blood as possible is removed from the patient; secondly, a stage in which blood is transfused into the patient while the withdrawal of the blood is continued; and finally, a stage in which exsanguination is stopped and transfusion is continued until the patient's blood is made up to normal volume. The efficiency of this washing out depends upon the amount of blood exchanged during the first and second stages of the operation, and this in turn depends upon the amount of blood available from donors. This method reduces the mortality from toxemia by one half. But it has serious limitations for it removes only that portion of the toxin which is circulating in the blood, it does not modify in the least the production of toxin. Therefore it can never replace tanning, but is used only for toxemia already produced. Unless tannic acid is resorted to, the procedure would have to be repeated as more toxin is liberated. An enormous amount of blood is required; therefore it can only be used in children; in older cases it is impossible to get enough blood. The procedure can only be carried out in the surgical amphitheatre by an experienced team of operators. It has been estimated that as much as twenty-five to thirty-five c.c. of blood per pound of body weight may be required. The site chosen is usually the superior longitudinal sinus or the saphenous vein as they allow a more free flow of blood. Again, it is repeated that this method is only used after the toxemia has developed; it is not a preventive measure. It is the only method we know which can lower the mortality rate after severe toxemia has set in.

In adults, or in cases where we cannot use the exsanguination-transfusion method, general care plus the administration of fluids, plus measures to favor elimination are the usual measures available. In these cases, also, the results of blood transfusion are sometimes remarkable.

The importance of adequate treatment during the first three days must be stressed; the value of excellent nursing care can not be overestimated. It has been found that by far the greatest mortality, particularly in children, oc-

curs between the end of the first and the end of the third day. By this time the pain has usually been controlled, and the morphine can be replaced by the coal tar derivatives and barbiturate compounds, the latter being particularly indicated to overcome the insomnia and apprehension which are both rather marked in a severe case. A continued low blood pressure is to be controlled by the administration of adrenalin or ephedrin; digitalis is used if myocardial weakness becomes evident.

THE TREATMENT OF SEPSIS: Under this head there is a great deal of controversy and much clinical judgment is necessary to determine the exact modus operandi. After the initial temperature rise which usually takes place within the first twenty-four hours, the temperature drops to normal or only slightly above, when the burned areas have become thoroughly tanned; it then remains at this level for five or six days. In the deeper burns, some exudate begins to form beneath the crusts between the sixth and eighth days, as is evidenced by a rise of temperature, a sense of fluctuation beneath the crusts, malaise, and sometimes delirium. It is at this point that I believe that Glover and others are correct in interfering with the status of affairs; I do not believe that Davidson is quite right when he claims that interference causes a so-called secondary toxemia.

I believe that the coagulum should be loosened at this time, and the best solution I have used is the old fashioned Dakin solution. This must be used fresh as it is an unstable type of antiseptic. The method of instituting continuous moist warm dressings is not to remove the dressings every two hours or so and then apply warm moist dressings again. This irritates the area, the patient, and the doctor. Simply cover the area with dressings moistened with Dakin solution. If the area is large use a series of Dakin tubes so that the whole area can be efficiently irrigated. The normal skin is adequately protected with sterile petrolatum. A heavy layer of absorbent cotton may be bandaged over the gauze. This whole is then covered with an impervious sheet of gutta percha or oiled silk to prevent evaporation; the coagulated areas being kept moist at all times. An electric cradle or tent keeps these dressings continuously warm, and therefore the old stuping method is not required. These dressings are moistened every two to three hours by means of a Dakin syringe inserted through a small hole or small holes made in the impervious covering. If the series of tubes have been used, then the Dakin syringe nozzle is inserted in certain of the lead tubes to irrigate the whole area. Dressings are changed every twenty-four hours.

This type of dressing is continued until the coagulum is all off and the granulating areas are clean and ready for grafting or are healing rapidly with epithelial islands which were not destroyed by the burn. The initial application is usually accompanied by a sharp rise in temperature, followed by a drop to a little above normal within twenty-four hours. A swinging temperature between this level and the normal then continues until the coagulum and necrotic tissues are all off. If the burn be a superficial one, the coagulum will be off in two to three days. However, in the deeper burns, where the skin is completely destroyed, it will take several weeks. It is important that the normal skin be protected with petrolatum, otherwise the constant use of the Dakin's solution will cause a painful dermatitis. When the coagulum is all off, there remains a granulating wound with or without epithelial islands; the use of a single layer of sterile vaseline gauze, covered with a dry dressing, remains the simplest and most efficient form of protection. If the vaseline gauze is applied before the necrotic tissue has all separated, sepsis is favored rather than retarded.

Davidson has used boric acid instead of Dakin's solution and he noted a secondary toxemia, which he thought was due to a release of toxins. As has been noted, there is a sharp initial rise in temperature, but this is followed by a drop, and as soon as the coagulum has been entirely removed the temperature becomes normal again. Glover has used the above method without evidence of any severe toxemia. Of course, where boric is used, there may be absorption of this; and also it has a low bactericidal value. Where the Dakin's solution has to be continued for a long time, there may be a burning sensation due to irritation; here we substitute saline solutions. This will usually allow some rise in temperature which drops again when the Dakin's solution is resumed.

Both Seeger and Lee have emphasized this infection which occurs under the coagulated membrane. If there are any signs of sepsis, they recommend that the coagulum be split and portions removed in order to establish drainage. Lee, during the tanning process, checker boards the area by making incisions so that two inch squares of tanned membrane are formed.

THE TREATMENT OF THE GRANULATING WOUND: By the time that this stage has been reached, the patient has passed through a series of trying syndromes and is somewhat exhausted. Moreover, a profound secondary anemia is apt to develop, which makes them less apt to resist intercurrent infection. Therefore, I would advocate the immediate grafting of the area just as soon as the granulations assume a somewhat healthy appearance. Parathiocresol seems to have a stimulating effect on the granulations. The use of vaseline gauze is excellent while waiting for the sloughs to all clear off; but once grafting is anticipated, I have found it best to remove these dressings and apply parathiocresol, or saline, or Dakin's solution dressings. The common practice of using picric acid ointment should be condemned; it not only has a toxic value, but (and this is true of all ointments) these unguents have the property of interfering with the immediate removal of drainage, and they also produce a poor type of granulation tissue of a slimy nature.

Immediate grafting of the area is advised for many reasons. Once the area is grafted, no further dressings will be required, and with due respect to all concerned there is no ideal dressing for a granulating wound at present. The economic hardship for the patient is over. In a practice devoted to state and industrial work primarily, I have found this factor very important. We have no accurate method of gauging the time which will be required for an area to fill in of its own accord. Recently, I treated a case seven months after the onset of the burn, with practically no attempt at epithelialization. This was completely covered in one month from the time of admission to my service. Another important factor which is ignored by the profession is that granulation continues to form in an open wound until it is covered with epithelium. Delayed epithelialization therefore results in an excessive fibrosis. This in turn cuts off the blood supply and retards healing towards the center of the granulating area. There is more apt to be the formation of contracture deformities with its consequent loss of function. In rare cases, years later, it may be the cause of a malignant change. This fibrosis can be kept at a minimum and healing greatly hastened by the immediate grafting of the area. Therefore graft just as soon as the granulations are somewhat healthy. In most cases, by the end of the third week, the area is ready for grafting.

PRINCIPLES OF GRAFTING BURNED AREA: The subject of plastic surgery is not being entered, a mere outline is given as to what should be done. The exact modus operandi will depend upon the degree of ulceration, the age of the wound, the condition of the patient, and the facilities for work.

If we have a rather deep but small wound, and it is over a bony prominence, it has been our practice to use a graft which brings along with it a large subcutaneous substratum. Free full thickness grafts require that the granulations be perfectly healthy. Therefore, pedicled grafts have been favored. The double pedicled or tube graft is the one which has given the highest percentage of takes in the writer's experience. It also gives much less discoloration than the free full thickness graft.

If the wound is not over a bony prominence, or if it is of larger dimensions, the small deep graft of Staige Davis is preferred. Even where it is definite that there is going to be a deformity, this grafting is still performed for the purpose of obviating any need for dressing, and therefore lessening the chances for toxemia and sepsis. It has also been determined that if deformity does occur after this grafting, it is usually minimal and can be more easily handled later for then we can be dealing with a sterile field. By using the small deep graft we do not have to worry about the field being absolutely sterile (which would be required for the other grafts). The small deep grafts, under proper technic, will take in ninety per cent of its field, even when some infection is present.

Blair advocates the use of large split skin grafts of intermediate thickness. Their use is attended with great success but it has been my experience that they need a clearer granulation tissue than we have worked upon and this would mean further delay.

THE TREATMENT OF OLD UNHEALED BURN: In the work for the Crippled Children Commission, cases are encountered which have been allowed to run on with enormous large granulating wounds. In many instances, ointments of various kinds have been used (especially, the picric acid ointment) and as a result the granulation are slimy, dirty, heaped up in some places, and deficient in others. The morale of the patient has been lost and their care is a problem. Extreme gentleness during dressings is essential; every effort should be made to make them as painless as possible.

The routine is to remove all dressings as

soon as the patient enters the ward; he is placed on sterile sheets; and the electric cradle is applied, which is kept at about one hundred degrees. This allows the granulations to dry and shrink; checks absorption and infection; and the patient is allowed a day or two of rest from all wound irritation. These cases have profound secondary anemias, and therefore they are immediately transfused. After a day or two or even more, continuous warm moist dressings are applied in the manner described before. The following solutions are all good: Dakin's solution 1:5000 pot. permanganate; acriflavine; normal salt solution; hypertonic salt solution (five to fifteen per cent); glucose solution (twenty to forty per cent). At times the patient will complain of one and not the other.

Antiseptics like five per cent Gentian violet or two to five per cent merchurochrome are sometimes useful when sepsis is present. To shrink overabundant granulation tissue, gauze (plain), bismuth or iodoform gauze saturated with sterile glycerine have been recommended. Regarding the use of ultra-violet rays: if a bactericidal effect is desired, the mercury vapor lamp is recommended with high dosage, but the treatments should not be continued any length of time. If what is desired is a general tonic effect the actinic rather than the bactericidal rays are required. For this, the carbon arc is perfectly adequate and the dosage should not be as great but it should be long continued for any effect to be noticeable.

The area must be covered just as quickly as is possible; the indication here is much more imperative than it was in the fresh case. Full thickness grafts and pedicled grafts are out of the question because the patient cannot stand an anaesthetic and the area is none too clean. It is undesirable to prolong the covering of the area, and so we desire to work just as soon as the granulations are in a half decent condition. Moreover, the area may require so much skin as to make it impossible to procure it. Here again, it is believed best to use the small deep graft of Staige Davis. This is done in several stages. The small deep graft is not replaced by scar after healing; they remain as permanently definite patches of skin. The amount of contracture in the healed area can be cut down to a minimum, especially if the grafts are fairly close together. The result can be made soft, pliable, and moveable with physiotherapy.

Therefore, as soon as the granulations are in a satisfactory state, the small deep graft is performed. Inasmuch as the health of the granulations vary from place to place in this wound, the grafts are scattered over the whole wound in suitable areas. A reasonable portion of these will take and stimulate the remainder to heal. The presence of the grafts, even though they do not take, stimulates the area and makes regrafting more certain of success. Eventually the distance between grafts is 0.5 to 1 cm.; successive grafts having been placed between those previously applied.

TREATMENT OF THE SCAR AND CONTRACTURE: By following out the above principles, it is believed that the amount of scarring will have been cut down to a minimum. As soon as the area is covered, the proper splinting must be instituted to prevent the formation of contractures. Physiotherapy in the form of heat, whirlpool baths, massage can do a great deal to loosen up the cicatrix and make the new skin more moveable. A patient is under supervision for at least six months after the area has been all covered. Prophylaxis is much more important than cure of contracture.

In cases where contracture has developed, these cannot be safely overcome by any sudden force, such as manipulation under anesthesia, because of the possible injury to the shortened blood vessels and nerves. The bones are usually atrophied and may fracture easily. Traction splints are the means available for the gradual correction of these contractures, where this is possible without an operation. Physiotherapy is an important adjunct.

TREATMENT OF OLD CONTRACTURES: Before operative interference is instituted, simple physiotherapeutic measures are instituted to attempt to loosen up the scar. The exact modus operandi will depend a great deal upon the extent of the scar, the operator, and the facilities at his disposal. Here the small deep graft has no place at all.

The types of plasties used are the split skin graft; the free full thickness graft; the pedicled graft; the tube graft; the gauntlet flap. All of these methods give excellent results. At times, we can use various shifting procedures of the scar tissue itself without excising it. One such method, the so-called "Z" flap plasty is as old as the history of skin plasty, but it frequently goes under the name of the Pieri skin plasty after the surgeon who popularized it. Here no graft is used at all, but by making our incisions

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PRESIDENT'S PAGE

SALINA MEETING

To the Members of the Kansas Medical Society:

The Kansas Medical Society will convene for its 77th annual session at Salina on Wednesday, Thursday and Friday, May 8-9-10, 1935. Twice before has the Saline County Medical Society been host to the State Society, and we who have attended these previous meetings, know that Salina will spare no effort to make this meeting second to none.

Immediately following the last annual session, the local committees were named with careful thought as to the fitness of each man for his job, and these committees have worked overtime in planning and perfecting all arrangements for the success of the meeting.

As a result of these efforts, the committees have procured an outstanding program. Ten guest speakers, representing the various branches of medicine, have been secured. These men are not only well known in our own country, but have also acquired international fame. Each of these men will appear on the program two or more times.

The excellent scientific exhibits will be of unusual interest and great educational value. We urge you to spend some time in this section for it is a splendid opportunity to enrich your medical knowledge. We feel certain you will come away from the meeting with the thought that you were well repaid for the time spent at the scientific exhibits.

The technical exhibits will also be interesting, showing the latest modern instruments and appliances, drugs, biologicals, books and foods, demonstrating the continued advance in the medical supply industry. These exhibits will be worth your time, and you owe it, not only to yourself, but to the exhibitors who have been so generous with their contributions.

By way of entertainment there will be the usual golf tournament and in addition to this a trap shoot, which is a new feature. Prizes will be awarded. Both of these events will take place on Tuesday, May 7. On Thursday, May 9, there will be a banquet, followed by entertainment and dancing. Friday night, May 10, a public meeting will be held in the Masonic Temple Auditorium. Dr. George W. Crile and Dr. William D. Haggard, both of whom are eloquent speakers, will address the meeting. It will be the regret of your life if you fail to hear them.

In addition to these events to which we have referred, the ladies have made extensive arrangements for the entertainment of the visiting wives and daughters.

Most of the county societies have been visited by speakers sent out by the Saline County Medical Society to acquaint them with the special features of the program and to urge their attendance at the meeting. However, a good story always bears repeating.

Salina, founded in 1858, is a beautiful city with a population of, approximately 21,000, centrally located and easily accessible by rail or highway. It is a hospitable city and has much of interest to offer its visitors.

First of all, we must take our hats off to the Chamber of Commerce, a wide-awake, aggressive organization. For it was through its cooperation with the Saline County Medical Society that we were invited to Salina. And it was the Chamber of Commerce that extended the invitation to the Kansas Medical Society.

Salina has a number of manufacturing industries, foremost of which is its flour milling in which it ranks sixth in the United States. It is a large wholesale distributing point for central and northern Kansas.

Salina has an excellent school system of twelve grades with kindergartens, a junior and senior high school, and in addition to these there is a parochial grade and high school. Here also are located Kansas Wesleyan University, Marymount College, St. Johns Military School and a Business College.

Salina has twenty-one churches, representing many denominations of the Christian faith; it has a Y.W.C.A. and a Y.M.C.A., and a splendid public library containing about 23,000 bound volumes, and two modernly equipped hospitals.

Salina has wonderful shade trees and well paved streets, two country clubs with eighteen-hole golf courses and five beautiful parks containing more than 185 acres and several miles of park drives. These parks have installed modern playground equipment and there are swimming pools, tennis courts, and an auto speedway.

The daily newspaper, the Salina Journal, is a live, progressive publication holding the world's circulation record for cities of 20,000. It has always been liberal in giving publicity to

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EDITORIAL

AUTOMOBILE ACCIDENT DEATHS

Years of altruistic study and research on the part of the medical profession has resulted in many benefits to humanity. So broad and irrefutable a statement is dull in itself, but when we reduce it to a limited field, time and location, it begins to bristle with interest.

A comparison of certain mortality causes in Kansas shows in 1921 there were 382 deaths from diphtheria and 155 from typhoid fever—a total of 537 deaths from two preventable diseases alone. In the same year, there were 154 automobile accident deaths.

In 1934 the comparison is startlingly reversed, with only 64 deaths from diphtheria and typhoid fever, and a total of 482 resulting from automobile accidents.

Due to advances made in scientific medicine, decreasing both cases and deaths from typhoid fever and diphtheria, these diseases are now minor factors in morbidity and mortality as compared with years ago. On the other hand, automobile accidents, theoretically under the control of drivers or pedestrians, have become a seriously increasing cause of death, and a difficult problem.

The fact that more than ninety per cent of the fatal accidents occur in good weather bolsters the theory that automobile accidents are controllable. In 1934, only thirty-six fatal accidents were reported to have occurred during unfavorable weather conditions. This seems to prove conclusively that deaths from motor cars are largely avoidable, since rain, mist, snow and fog actually reduce fatalities to an amazing minimum. What would normally be considered a driving hazard is in reality a safeguard.

Another proof that motor vehicle accidents are, for the most part, humanly controllable, is that the 1934 data show fatalities from reckless driving in a great majority over other causes.

There were 131 pedestrian deaths in Kansas in 1934; 147 fatal injuries due to collisions of motor vehicles; 117 persons killed in non-collision accidents (27 the result of mechanical defects), and 77 deaths due to collisions with fixed objects. Of the pedestrian deaths, 58 were the fault of the persons killed.

Among the fatal injuries, fractures of various types were the most frequent cause of death—nearly fifty per cent of which were fractures of the skull, as, of the 310 injuries in this group, 235 were skull fractures.

Insofar as automobile accidents are concerned, the popular belief that "forty is the dangerous age" is proven to be a fallacy. The highest number of deaths for males was from twenty to twenty-five years of age; this group far exceeded any other five-year period from one to ninety years. Female deaths, which were much less than male deaths, were greatest between the ages of fifteen and twenty years. In 1934, a total of 349 males were killed and 133 females lost their lives in motor car accidents.

In addition to the 482 deaths, 456 persons received non-fatal injuries in the 460 fatal accidents.

The week-end takes the greatest toll of lives—Sunday heading the list of all days in the week. Obviously this is the result of more motor cars in use than at any other time.

Certainly we are facing a serious and growing problem in the rapid increase of deaths from automobile accidents.

Medical science has done and is doing much to reduce and control disease and death-producing germ life.

What a boon it would be if similar means could function for the prevention of motor vehicle accidents—if it were possible to inject into the human race a much-needed inoculation of common sense.

EARLE G. BROWN, M.D.

LEGISLATIVE RETROSPECT

The Kansas legislature, during its last session, passed several laws of benefit to public health, and refused to pass others likely to result in detriment. Altho members of the medical profession recognize that fact, yet they regret that the legislature failed to pass a most important measure—Senate Bill 31, a basic science bill which would have helped materially to raise standards of all those engaged in the healing arts. This measure was shunted aside in the closing moments of the session.

Political pressure was largely responsible for the failure of the legislature to consider the very obvious merits of Senate Bill 31. Under the law, all healing applicants would be required to pass an impartial examination, given by an unbiased board composed only of college

professors and representatives of fields of healing, in essential subjects. Certain cults were unwilling to raise their standards enough for their followers to pass the examination. (There is still some difference in the way anatomy and physiology look to a physician, a chiropractor, and an osteopath.) "Scientists" who rub and knead the body feared the supervision of doctors of philosophy and other scientific men. Many are the practitioners of healing who have no intention of airing their educational qualifications! The sacred right of licensure, said these men, should not be tampered with. Bill 31, they argued, was but another step in medicine's odious campaign to monopolize healing. Base scientists were behind the basic science bill.

Foes of the bill prevailed upon persons unfamiliar with the scope or intention of basic science laws to sign petitions denouncing a law that would "repeal the law of chiropractic," that would place other professions "under the control of organized medicine." Others were persuaded to write and telegraph protests against revoking present licenses. Statistics, purporting to prove that certain groups had been unable to pass basic science examinations elsewhere, were cited to show the unfairness of the laws! In the end, enough pressure was brought to bear to prevent the legislature from taking a stand either way.

As a result of the activities of foes of Bill 31, Kansas will have two more years under antiquated regulations for healing. Kansas will continue to be the Promised Land for poorly trained cultists, who may continue their regime of learning basic science from patients rather than from schools.

This is to be regretted, but it is even more regrettable that those engaged in a profession as vital as caring for the sick should take the stand adopted by opponents of the bill. We are glad that medicine is not on that side of the fence. Our hats are off to Senator Henry Diefendorf, our legislative committee, our executive secretary and members for a well-presented campaign in behalf of this vital measure.

THE STATE MEETING

Elsewhere in this issue you will find much about the coming State meeting. For many reasons the Salina meeting is especially stressed.

A review of the program should be sufficient to create a desire to attend. The men who are giving papers are of national reputation and the subjects which they have chosen are of especial interest. They should contribute much to sharpen our mental equipment.

Our present economic condition will occasion much discussion and will probably bring forth some important decisions from the House of Delegates. These problems are of profound interest to most of us and should receive our best thoughts.

We are told that the commercial and scientific exhibits will be far above the average in interest and instruction.

Salina is centrally located, easily reached from all parts of the state, has unusual convention facilities and a live County Medical Society All of these features will make your stay pleasant.

Most physicians invest too little in post graduate instruction. We become worn into our own grooves and too set in our methods. Here is an opportunity for self improvement, bettered service and good entertainment at a nominal cost. If you cannot stay the three days plan a day or two but go to the State Meeting!

Walter Bauer, Boston (J.A.M.A., Jan. 5, 1935), points out that the first requisite in treating each patient with skeletal symptoms is to determine whether or not the symptoms are due to arthritis and, if so, to determine the type of arthritis. Not until this has been done should one attempt to prescribe a diet. There is no specific diet for patients with arthritides of known origin other than the dietary which would ordinarily be prescribed whenever the particular disease or etiologic agent responsible for the arthritis is dealt with. Gout is the one exception. Degenerative and rheumatoid arthritis represent the diseases one ordinarily thinks of as chronic arthritis. They are not causally related or due to the same etiologic agent. In degenerative arthritis, diet is indicated only in the presence of obesity, and then it should be sufficiently low in calories to allow weight reduction but adequate in every other respect. There is no evidence to prove that a low carbohydrate diet is indicated in rheumatoid arthritis, nor is there any proof that it is efficacious in curing the disease. Patients with rheumatoid arthritis should eat a diet high in calories (unless they are overweight), high in vitamins and adequate in respect to calcium, phosphorus and iron.

LABORATORY

BLOOD CULTURES AND WIDALS IN TYPHOID

CORA M. DOWNS, PH.D.*

Lawrence, Kansas

In a consideration of the laboratory diagnosis of typhoid fever two of the most important procedures are the blood culture and the Widal test. The blood culture is the earliest and the most unequivocal test which can be made in typhoid fever. Organisms may be isolated from the blood in eighty-nine to ninety-three per cent of cases during the first week of the disease, seventy-three per cent during the second week and thereafter less and less frequently. At least five c.c. of blood should be withdrawn aseptically and added to ten to twenty volumes of a suitable medium to provide for dilution of the natural bactericidal property of the blood. The finding of typhoid bacilli is diagnostic since they do not occur in the blood stream except in infection, whereas the Widal test may be positive following vaccination or in the carrier state. If, on the other hand, a culture taken during the first week is negative, it would be wise to repeat the culture in a day or two using larger amounts of blood.

The Widal test as it is usually done consists of a series of dilutions of the patient's serum mixed with an equal quantity of the following antigens: B. typhosus, B. paratyphosus A and B. paratyphosus B. The patient's serum is usually diluted to one to forty or fifty, and one to eighty or one hundred. If one or more of the organisms used as mentioned above agglutinate at one to eighty the test is considered positive. The test may be macroscopic or microscopic and various temperatures and times for incubation have been recommended. There seems to be some unanimity of opinion that fifty-five degrees Centigrade for one to four hours is the best temperature and time for incubation. There has been no uniformity as to the kind of antigens used. The organisms were frequently stock culture, sometimes of doubtful authenticity. Living, heated, formalized or phenolized suspensions were usually used.

In the last ten years much has been done on the different antigens present in B. typhosus and the paratyphoids. It was found that each of the organisms possessed several antigens which could be separately studied. B. typhosus was found to have an antigen associated with the flagella which has been designated as the "H" antigen. Cultures which had become nonmotile or which had been heated to seventy degrees Centigrade or treated with chloroform lacked this "H" antigen. Cultures which were virulent and gave smooth colonies on agar had an antigen in the cell which was designated as the "O" antigen meaning "ohne" or without flagella. The "O" antigen chemically seems to be made up of a carbohydrate and a nucleoprotein which has been called the "Ø" antigen. Cultures which had lost their virulence and which produced rough colonies on agar had lost the carbohydrate portion of the "O" antigen but retained the antigenic properties designated as "Ø". We have then four possible combinations as follows:

H+O=Normal virulent motile typhoid bacilli
O=Normal virulent non-motile typhoid bacilli
H+Ø=Rough avirulent motile typhoid bacilli
Ø=Rough avirulent non-motile typhoid bacilli

The antigenic differences observable in these different forms had considerable bearing on the Widal and on the question of what strain should be used for vaccination. Felix in 1924 found that "H" agglutinins developed much more abundantly following vaccination than the "O" agglutinins, the latter developing to high titers during an attack of typhoid fever. This seemed to offer a way to differentiate between the agglutinins which might be present as a result of vaccination and those actually due to an attack of the disease and would therefore increase the value of the Widal as a diagnostic aid.

Mudd[1] in a careful study of the Widal test in a group of persons having typhoid fever, a group of vaccinated persons and a series of normal controls has shown that the titer of "O" agglutinins may rarely reach 1-320 in vaccinated persons, and frequently no "O" agglutinins or only small amounts are present. On the other hand persons suffering from typhoid fever showed agglutination for "O" agglutinogen in dilutions of 1-160 to 1-1280, the majority being above 1-160. The vaccinated group gave agglutination with "H" agglutinogen in titers of 1-320 to 1-2560. These findings are also confirmed by Dulaney[2] et al, who find that typhoid vaccination stimulates the production of "H" agglutinins to high titers and "O" to much lower titers. They recom-

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mend that dilutions of 1-500 of "O" agglutinins be considered diagnostic for typhoid fever. Feemster[3] has reported that persons having typhoid fever or having been previously vaccinated responded with very active agglutinin production when they were subsequently inoculated with typhoid vaccine. Vaccinated persons frequently showed agglutinins for as long as two years following vaccination. It seems quite certain that any kind of an infection may stimulate the appearance of agglutinins for typhoid in a previously vaccinated person. It is therefore of considerable importance to be able to distinguish by means of the Widal between these agglutinins and the agglutinins due to an attack of typhoid fever. It would seem reasonable that the antigen used for the Widal test should be an "O" antigen rather than an "H" antigen. That is, it should be a heated or an alcohol treated suspension. It should be prepared from a smooth culture since "O" agglutinins may not act on a rough strain containing the "Ø" antigen only. The Rawlins strain which contains both "H" and "O" antigens may be used satisfactorily but a more purely smooth strain such as 0901 containing the "O" antigen would be better. The dilutions of the patient's serum should be carried to 1-1280 and the incubation should be at fifty-five degrees Centigrade for at least one hour.

The Widal test using the "O" antigen is unfortunately open to the objection that there is somewhat more cross agglutination in typhoid cases with Para A and B than there is when a living motile culture is used. Mudd reports that eight out of nine typhoid cases gave a positive Widal with Para A and B "O" antigens where as with living culture four of the nine gave positive reactions with Para A and five of the nine gave positive reactions with Para B. The titer in all cases was, however, higher with the infecting organism, that is, B. typhosus than with the paratyphoids.

A procedure which gives greater diagnostic value to a positive Widal is the repetition of the test a week or ten days after the first positive test. If the patient is suffering from typhoid fever the agglutinin titer should be higher than it was in the first test.

In view of the prevalence of vaccination and of the recently discovered factors as discussed above it would seem reasonable to make the following recommendations:

1. A smooth strain of typhoid should be used as antigen. Two antigens should be prepared. A living culture and an alcohol treated culture, the latter to enable one to distinguish between "H" and "O" antigens.

2. The patient's serum should be diluted from 1-40 to 1-2560.

3. Incubation should be one to four hours at fifty-five degrees Centigrade.

4. The microscopic Widal using low dilutions of the patient's serum and living organisms should be discarded.

REFERENCES

Mudd, Stuart. Jour. Immunol., 1932, XXIII, 81-90.
Dulaney, A. D., Wikle, W. T., Stewart, R. L. Rayfield, J. D., Walker, J. K. Preacher. A. B., Jour. Immunol. 1933, 24, 229.
Feemster, R. F. Jour. Infect. Dis., 1932, 50, 121.

MEDICAL ECONOMICS

In keeping with times wherein certain economic factors are of importance to the practice of medicine, the Journal has added a section on medical economics. Supervision will be by the Society Medical Economics Committee, and material presented will consist of articles, abstracts, and discussion offering information or remedies pertaining to current problems. Contributions and comments are invited from members at all times.—Editor's Note.

The Medical Economics Committee in a meeting of March 6 recommended that each county society appoint a committee or committees on economics. It was believed that these committees could study plans and information to be forwarded by the Society committee, that recommendations could be made to the various county societies as to the local applicability of such plans, that many local problems could be facilitated thereby, and that many valuable suggestions could be offered for assistance to the Society Committee. A further suggestion was that societies comprising more than one county to make local consideration more possible, could select separate or sub-committees for each county from which they have members.

"WILL AMERICA COPY GERMANY'S MISTAKES?"

An interesting article, captioned as above, has been received from the Medical Society of New York, which organization in conjunction with the Pennsylvania Self-Insurers Association employed Mr. Gustav Hartz, a labor economist of Berlin, Germany, to write an accurate and fair portrayal of what social insurance in general, and health insurance in particular, has accomplished for Germany. The article, too

lengthy to print in verbatim form, is abstracted below, and copies will be forwarded upon request to any members interested.

Mr. Hartz in summarizing his findings states that social insurance has largely been responsible for the present plight of Germany, and warns America against following its apparent benefits which ultimately lead into economic fallacies. All social insurance, he says, is unemployment insurance. That "to consider unemployment insurance an achievement of recent years, to call it the 'crown of social insurance' is a mistaken view for every social insurance pertains to unemployment whether such is due to illness, accident or incapacity, old age, or to being out of work."

The first part of the report is devoted to "Reasons for Introduction of Social Insurances" wherein is outlined the condition of Germany fifty years ago, with low wages, no resources to fall back upon, loss of jobs and existence of dire want. There was seemingly no assurance as to what the future would bring. The state wishing to stop this unrest turned to social insurance. The common supposition was that every contingency of life was to be provided by social insurance. A social upheaval was to be a thing unknown but the tables turned and the result is now evident. "The so-called self-administration of social insurance by the circles concerned, did nothing to improve the situation. Discontent and grumbling did not cease, it grew. This arose from the social insurance principle, which is only able to grant a minimum, and the odium of the insufficiency accompanying it, in connection with which the saying was coined: 'too little to live on and too much for starving.' From the very beginning the social insurance legislation was scoffed at by the radicals who called it 'Beggar's soup politics' and they never ceased demanding an increase of the allowances." The result of the promises and plans of state political groups was as follows: Unemployed increased rapidly in number and employed workmen still paying premiums diminished; premiums went up; wages were cut; allowances continually decreased.

Under health insurance sick days increased from 5½ to 28 per worker per year. There was no way of telling just how sick a patient might be and no way of fixing the duration of an illness. It was the most incalculable risk in existence, as there was no scale by which to judge. It was difficult for a physician to diagnose correctly and to distinguish pretenders from really sick people or to determine whether the man was in fit condition to carry on with his work.

Mr. Hartz gives as the provisions of health insurance the following: "The sick insurance provides the workmen with medical attendance free of charge, with medicine and other necessities, and with an allowance." This was thought a great blessing for the workman but the thing not reckoned with, is the desire and craze for money which led the patients to go back to a doctor a dozen times, where once would have been sufficient, and the insurance paid. Medicines obtained lay around until they were useless and the insurance paid.

When Sick Benefits Come in Handy: It seems improbable that a man would be contented with fifty per cent of his wages when he could receive the whole by working, but when holidays, fewer shifts, less work and shorter hours, frosty weather, outdoor work, were all taken into consideration, the fifty per cent wage was a welcome alternative. Patients were sent for medicines to cure their illness and obtained toilet soap, perfume and luxuries.

Physicians Driven to Mass Practice: "Mass demand compelled a limitation in the use of medicines. Doctors must not prescribe what they consider good for the patient, they only being allowed to give remedies entered in a book of medical regulations for insurance purposes. The insured workman becomes a second class patient."

Goal Is to Make All People Pensioners: Mr. Hartz claims that state pensions means the death of all will to work and all personal ambition. "Social insurance has produced an unbelievable number of questions and problems hardly fathomed by the uninitiated, who face them quite helplessly.

"Social Insurance is distinctly a system that eats up and wastes capital. If it were based on adequate capital and reserves the premiums would be so high that there would not be enough money in the world to pay them."

Medical Policemen Now: "Confidential Doctors" controlled not only the patients but the fellow doctors who were treating them and were therefore medical policeman. "The genuine patient is justly indignant to find that the existence of his illness is doubted, and that he who has always paid his premiums regularly and has a right to demand conscientious attendance, is considered a cheat. This system,

together with the rest of the bureaucratic apparatus has wedged itself between doctor and patient, completely destroying the patient's confidence in his physician, which greatly retards all recovery."

Scandals of Administration: The squandering of money, involvement of physicians, dentists, chemists, and sometimes employers, in some scandal or embezzlement charge, and deducting the premiums from the workmen's wages without paying them to the insurance fund, was all a part of the social insurance plan to help the day laborer. All this was carried on at the workmen's expense, as he bore the part supposedly paid by the employer, whose share was about ten per cent of the wages and one of the most vital expense items of the economic system.

Unemployment Insurance Not for Idle: "Social insurance has nevertheless taught one good: Every worker must use part of his earnings to protect his future. Instead of an insurance card the workman would have a bank book, the best way of giving him a sense of responsibility."

(Continued from Page 158)

our meetings, both before and during the session.

Salina has six modern type hotels offering many single rooms with bath and some suites. All hotels are located adjacent to the business district and within walking distance of the general assembly. There are many rooming houses, fraternal clubs and private homes affording hundreds of rooms for visitors.

As a shopping center Salina holds an enviable position. It has over two hundred retail establishments with large stocks of up-to-date merchandise from which the shopper may select the latest in fashion, fad or fancy, or whatever his need may be.

We have endeavored to tell you some of the salient points of the meeting and a few of the interesting facts about Salina. We hope we have aroused your enthusiasm for both to the extent that you will come early, bring the good wife, and remain until after the public meeting on Friday night when the curtain falls on the last act of the 77th annual session of the Kansas Medical Society. Meet me in Salina!

J. F. HASSIG, M.D., President.

MEDICAL LITERATURE

Edited by William C. Menninger, M.D.

DEATH FROM SURGICAL PROCEDURE IN A PREVIOUSLY "CURED" AGRANULOCYTIC ANGINA

Bryant reports a case of granulocytic angina which although it had previously been reported as "cured," following the extraction of nine teeth developed chill, fever, gangrene of the gums, cellulitis of the neck, and broncho-pneumonia, dying five days afterward. He stresses the point that all patients who have had this disease should avoid rigorously surgical procedures which concern mucus membranes of the body and further that they should carefully attend to any spontaneous lesions of the membranes which may occur, no matter how insignificant they may be.

Bryant, B. L.: Agranulocytic Angina: Further Report on a Case with Fatal Outcome Following Oral Surgical Treatment. Arch. Otolaryng. 20:665-667 (Nov.) 1934.

SINUSITIS IN PNEUMONIA

Campbell of the Department of Otolaryngology in the University of Pennsylvania studied 130 patients with pneumonia between the ages of three weeks and ninety years, and found that sinusitis was present in one hundred per cent. The diagnosis in these cases was made in 120 by means of the nasopharyngoscope and in the remaining ten by roentgenograms. Acute purulent otitis media was found in seventy per cent of the 130 patients. It is suggested that the infected sinuses are a possible etiological factor in the production of the pneumonia and that early efficient removal of purulent secretions from the sinus by suction might tend to lessen the incidence of pneumonia in infants and children.

Campbell, E. H.: Incidence and Significance of Sinusitis in Pneumonia. Arch. Otolaryng. 20:696-703 (Nov.) 1934.

A RHINO-ENCEPHALOCELE

Browder and De Veer of the Long Island College School of Medicine report the history and pathological findings of a new-born infant which presented an unusual type of naso-frontal encephalocele which they interpreted as a developmental anomaly of the rhinencephalon. This very curious deformity which protruded from the nose and contained brain tissue of a sclerotic nature from the interior portions of the frontal region of both cerebral hemispheres. The case was further interesting

because the child presented a developmental anomaly in the form of a defective intraventricular septum of the heart.

Browder, J., and De Veer, J. A.: Rhino-Encephalocele. Arch. Path. 18:646-659 (Nov.) 1934.

ROENTGEN THERAPY IN CHRONIC SINUSITIS

Butler and Woolley of the University of Oregon Medical School have over several years made reports on the roentgen therapy in chronic sinusitis. They publish a further report now of the follow-up to their previous studies, of one hundred cases in which by roentgen therapy thirty-one remained symptom free, fifty were definitely improved and nineteen were unchanged. The original paper had aroused considerable criticism because of possible damage to the skin, blood vessels, nerves and even to the brain; these writers, however, still believe that roentgen therapy has a definite place in the treatment of chronic paranasal sinusitis in properly selected cases, and that there need be no damage whatever to normal structures if properly applied. They further maintain that failure of roentgen therapy in no way interfere with subsequent surgery should the latter become necessary. They do not assume that the procedure is without danger but believe it is safe in experienced hands.

Butler, F. E., and Woolley, I. M.: Roentgen Therapy in Chronic Sinusitis, A Further Report. Radiology 23:528-535 (Nov.) 1934.

PORTALS OF ENTRY IN SUBACUTE BACTERIAL ENDOCARDITIS

This study from Mount Sinai Hospital in New York is based on the records of 364 patoents with subacute bacterial endocarditis, admitted during the last fourteen years, and analyzed with particular attention to the antecedent history and manner of onset. This analysis suggests that the common portal of entry of the streptococcus is from foci of infection in the passages of the upper respiratory tract and mouth. Other portals of entry are the genito-urinary tract, otitic infection and wound infection, but there was no evidence of the gastro-intestinal tract as a portal of entrance. In ten of these cases there was a history of tonsillectomy or of the extraction of a tooth closely ante-dating the onset of symptoms, suggesting that trauma of an infective focus in this region may produce a transient bacteremia and thus play a part in promoting implantation on the endocardium.

Weis, H.: Relation of Portals of Entry to Subacute Bacterial Endocarditis. Arch. of Internal Medicine 54: 710-719 (Nov.) 1934.

EFFECTS OF THYMUS EXTRACT

One cc. of thymus extract from the thymus of calves was injected daily in a group of white rats. In some groups this procedure was carried out in a number of generations of the rats. In another group the treatment was interrupted for a generation, and in still another group there was no thymus extract administered (control group). From such a study it was concluded that thymus extract (Hanson) has accelerated the rate of growth and development, has hastened the onset of adolescence in the offspring of treated rats, and has seemed to increase the fertility of the parent rats. The injection of succeeding generations of parent rats has resulted in the amplification of the effects of thymus extract.

Rountree, L. G., Clark, J. H., and Hanson, A. M. The Biological Effects of Thymus Extract (Hanson). Jr. Amer. Med. Assn. 103: 425-430. (November 10) 1934.

(Continued from Page 157)

appropriately we can replace the flaps so as to relieve the contracture. This method is especially serviceable in contractures of the fingers, axilla, and the neck.

Where an ugly scar has resulted (without any deformity), the gradual excision method is used. It may take a half dozen operations before a large area scar is transformed into a linear one.

PROGNOSIS: According to Pack and MacLeod, the extent of the burn is more important than its depth. All burns of the first degree are fatal if two-thirds of the body surface is involved; and all burns of the second degree are fatal in adults if one-third of the body surface is involved, and in children if one-seventh is involved. All burns covering one-third of the body surface are extremely serious, if not imminently fatal. All burns involving one-tenth of the body surface should be considered serious.

Berkow estimates surface lesions as follows: the lower extremities, including the buttocks, comprise thirty-eight per cent of the body surface; the trunk, including the neck, thirty-eight per cent; the upper extremities, eighteen per cent; and the head six per cent. The hand is one quarter of an upper extremity and the arm three quarters. Of the lower extremity, the foot is one-sixth, the leg one-third, and the thigh one-half.

NEWS NOTES

STATE MEETING NOTES

Plans are almost complete for the next state meeting to be held in Salina on May 7, 8, 9, and 10. A detailed program will be mailed to every member on approximately April 20, and Saline County Medical Society has forwarded the following information concerning speakers and events. It is believed that this will be one of the best meetings ever held by the Society, and a record attendance is anticipated.

SECTION ON INTERNAL MEDICINE

The section on medicine offers a scientific program of unusual merit. Men who are among the leaders in our profession will appear on the program and will endeavor to impart new ideas, furnish new suggestions and demonstrate new methods which will be of pronounced educational value to every practicing physician in the State. Surely in this era of rapidly changing ideas and progress in medicine, no one can afford to miss this opportunity the state meeting offers to acquire first-hand knowledge of all the latest developments in medicine.

Dr. George W. Crile, director of the Cleveland Clinic Foundation, Cleveland, Ohio, will talk on the following subjects: (1) Normal and pathological physiology of the neuroglandular system. (2) Polyglandular disease.

Dr. James Payton Leake, senior surgeon, United States Health Service, Washington, D. C., will offer papers on the following: (1) Anterior poliomyelitis. (2) Small pox.

Dr. A. Carlton Ernstene, associate physician, cardio-respiratory division, Cleveland Clinic Foundation, Cleveland, Ohio, will present the following: (1) Types of heart disease and their recognition. (2) Heart disease and use of drugs. (3) Lung abscess.

Dr. C. H. Warfield, assistant professor of medicine, Loyola University Medical School, and professor of Roentgenology, Cook County Graduate School of Medicine, Chicago, Illinois, presents: (1) X-ray diagnosis of duodenal ulcer. (2) Differential diagnosis of silicosis.

In addition, the above men will preside at noon luncheons in Internal Medicine. Anyone with questions may present them at these round table discussions.

SECTION ON SURGERY

In preparing the 1935 surgery program the committee has endeavored to outline one that will meet the requirements of every doctor in the state, any part of which no physician can afford to miss.

Seldom, if ever, have we been privileged to meet here and brush elbows with such outstanding men as will appear on the surgical program:

Dr. George Crile, master surgeon, whose cleverness as an operator has spellbound all who have seen him work and nationally and internationally recognized by reason of his contributions to both medicine and surgery. What he has to offer will be unusually instructive and of profound interest.

Dr. Wm. David Haggard of Nashville, Tennessee, also a nationally and internationally known surgeon, author and orator. Whatever he presents, whether it be "Drugs, Devils and Doctors" or something else, will be well worth hearing.

Dr. Oswald Swinney Lowsley, of New York, N. Y., who is director of the Department of Urology of the James Buchanan Brady Foundation, and consulting urologist for Stuyvesant Square Hospital and other hospitals. He is one of the most prominent in his field, and a distinct contribution to the program.

All of these men are outstanding, and in their own manner will have information worthy of time and attention.

SECTION ON PEDIATRICS

The larger part of the work of the general practitioner in Kansas deals with children. Only infrequently does the doctor have an opportunity to come in contact with the best in the pediatric field.

We are anxious to have every one of you present to hear and meet Dr. Irvine McQuarrie. Dr. McQuarrie is known as one of the best workers in pediatrics, is head of the Department of Pediatrics in Minnesota University and will give us the results of the work they have been doing.

Recently, in speaking to one of best known men in this work, we told him we had secured Dr. McQuarrie for our Kansas program, and asked what other doctor we should have in this field. His answer was, "If you have Irvine McQuarrie I don't see why you need anyone else, he will give us all we can assimilate."

We want all of you with us in Salina. It will be worth more than any effort you will need to make. Dr. McQuarrie is attending a meeting in Atlantic City May 7, and in order to be with us May 9, will take a night plane from Philadelphia.

We can well afford an extra effort to be present when our guest is willing to go to such lengths in order to be with us.

SECTION ON EYE, EAR, NOSE, AND THROAT

In keeping with the rest of the program, this section will provide two of the best known eye, ear, nose, and throat men in the country:

Dr. Sanford R. Gifford of Chicago, Illinois, professor of ophthalmology at Northwestern University Medical School, and attending ophthalmologist at Passavant, Wesley, Evanston, and Cook County Hospitals.

Dr. James B. Costen, of St. Louis, Missouri, instructor in oto-laryngology at Washington University, and consultant and surgeon at Barnes, St. Louis Children's Washington University Dispensary, and St. Luke's hospitals.

Their presentations will be of unusual interest and assistance to every member.

SECTION ON OBSTETRICS AND GYNECOLOGY

The committee was fortunate in securing the services of Dr. M. Edward Davis, of Chicago, Illinois. Dr. Davis is a member of the professorship staff of the University of Chicago Medical School, and attending obstetrician and gynecologist at Chicago Lying-in Hospital, attending gynecologist to the Albert Merritt Billings Hospital, and is prominent in many obstetrical and gynecological organizations.

In addition to several interesting presentations he will discuss a sound movie forwarded by Dr. Jos. DeLee, of Chicago, on "Forceps Operations."

SCIENTIFIC EXHIBITS

Dr. Arthur Hertzler's cancer exhibit and several displays from the American Medical Association will be among the scientific exhibits. In addition the University of Kansas Medical School, the State Board of Health, and several members have cooperated in providing interesting and instructive exhibit contributions.

COMMERCIAL EXHIBITS

Mead Johnson & Company will have on exhibit its complete line of infant diet materials including Dextri-Maltose Nos. 1, 2 and 3, Dextri-Maltose with Vitamin B, Mead's Standardized Cod Liver Oil, Mead's Viosterol in Oil, Mead's Cod Liver Oil with Viosterol, Mead's Viosterol in Halibut Liver Oil (liquid and capsules), Mead's Halibut Liver Oil, Mead's Brewers Yeast (tablets and powder), Pablum, Mead's Cereal, Sobee, Mead's Powdered Protein Milk, Mead's Powdered Lactic Acid Milk Nos. 1 and 2, Mead's Powdered Whole Milk, Alacta, Recolac and Casec. There will also be for the examination of physicians a complete line of Mead's services such as "Diets for Children From Four Months to Four Years," height and weight charts, etc., all of which are free to members of the medical profession in any quantity desired. Representatives will be on hand to meet their friends and to discuss the application of any of the Mead products to infant feeding problems.

H. G. Fischer and Company will display their latest improved electro-therapeutic equipment. Among these will be their short-wave apparatus designed on a new type of construction with special built tubes, a power increase of twenty-five per cent, four patient's outlets to aid tuning, capacity to tune in pad or cuff electrodes and varying body resistances, and with increased tube economy. Also, they will exhibit their shock-proof x-ray apparatus with all diagnostic service heretofore requiring separate pieces of equipment now provided in a single unit, and capable of producing vertical and horizontal radiography and fluroscopy. Representatives will be present for demonstration.

The American Optical Company will provide an exhibit of interest from the standpoint of optical equipment.

The Medical Protective Company, and its Kansas representative, Mr. A. L. Peterson, will exhibit in pursuance of its policy, "That Professional Liability risk of the doctor cannot be given an underwriting classification with any other type or types of insurable hazards, without disadvantage to the doctor. The circumstances out of which arise the reciprocal rights and duties of a doctor and his patient are peculiar to their relationship; the interest of the doctor in the management and disposal of charges of negligence against him is not to be compared to that of any other class of damage suit defendants. The most exacting requirements of adequate liability protection are those of the Professional Liability field," a field in which that company is exclusively engaged. Samples of its publication "The Doctor and the Law," devoted to the discussion of litigation affecting the practice of medicine, will be distributed, and its representatve will be glad to confer on all problems.

Philip Morris and Company, manufacturers of Philip Morris cigarettes, will attend, and will have available results of their research concerning the effect of hygroscopic agents on tobacco and cigarette smoke.

Gerber's new process of shaker cooking of their strained foods will be explained and the foods demonstrated. By this new method the contents of the center of the can reach the temperature necessary for adequate sterilization in from one-fourth to one-third the time necessary by the usual canning procedure. The result is evident in a brighter color and better flavor of the foods, accomplished by avoidance of overcooking. In order to bring the entire contents of a can to 240 degrees F. for adequate sterilization, it has been necessary by canning procedure in general use, to process foods at a higher temperature and for longer time than most desirable from the standpoint of food color and flavor. The new method of Shaker-cooking does away with this over-cooking and with uneven cooking, by continuous shaking during the cooking. This method accomplishes the same thing as stirring in home cooking, thus distributing the heat uniformly and shortening the cooking time considerably. Charts showing the heat penetration into the can and illustrations of the equipment, with open samples of the food will be on display at the Gerber booth. Booklets and leaflets will be available. Some of these publications are suitable for distribution by physicians while some are for professional use only.

The A. S. Aloe Company will show the new Aloe Radio Short Wave Diatherm and the new style Elliott machine. In addition a complete general line of instruments and equipment will be shown, and Stille-Scanlan rustless steel instruments will be offered at a special discount of 25 per cent. The Aloe Company's Kansas Representative Mr. Max M. Coe will be in attendance to serve in any way possible.

W. A. Rosenthal X-Ray Company will exhibit products of the Westinghouse X-Ray Company and the Burdick Corporation. Mr. John Melaske, Kansas representative, will be in charge to explain and assist.

The General Electric Company will display and demonstrate newest and latest equipment of that company. An invitation is extended to all members to discuss problems or improvement of office facilities with its representatives, Mr. Folk or Mr. Kroyer, who will supervise explanation and demonstration.

The Quinton-Duffens Company will present an optical exhibit which will be directed by their Salina store.

Midwest Surgical Supply Company will be in attendance to demonstrate and exhibit surgical equipment and other instruments and supplies.

The Kelly Koett Company, Goetz-Neimeir Company, Jo-Mar Dairy Company, and H. D. Lee Company are others who are expected to exhibit.

ENTERTAINMENT

Among many interesting entertainment features will be the annual golf tournament, and a new event, the trap tournament. Both of these are to be held on May 7, and considerable prizes have been provided. The trap tournament will consist of blue rock shooting with a qualifying round to divide shooters into different grades of competition. Also the annual banquet will include dancing and a professional floor show. Wives of Saline county members have likewise planned entertainment for visiting wives and daughters.

PUBLIC MEETING

On Friday evening, May 10, a public meeting will be held in the auditorium of the Masonic Temple, and talks will be given by Dr. George Crile and Dr. Wm. Haggard.

ACCOMMODATIONS

Ample accommodations have been provided by a Saline County committee.

DUES

The central office has for the past several weeks been preparing and forwarding 1935 membership cards. So far, several counties have reported one hundred per cent membership, several dormant county societies have reorganized, and dues received are somewhat in excess of the same period last year. All unpaid members are requested to forward remittances to their county secretary as soon as possible to aid the central office in compiling county society membership for the year, and to qualify attendance at the state meeting.

BASIC SCIENCE PROPOSAL

Senate Bill No. 31 introduced by Senator Henry Diefendorf, Riley, and providing for healing applicants to pass a basic science examination from an impartial board was killed on the Senate calendar in the closing moments of the session.

Previously, it had been approved for passage by the Senate Committee on Temperance and Public Health after a hearing at which Bishop James Wise of the Episcopal Church, Father Wm. Schaeffers of the Catholic Church, Rev. J. E. Lander of the Kansas Hospital Association, Mr. James Malone, representing the Catholic hospitals, Mr. William Drennan, representing the Kansas City Chamber of Commerce, Mr. W. M. Newmark of the Kansas Pharmaceutical Association, representatives of the Kansas Board of Health, Dr. C. C. Nesselrode, and Dr. E. C. Duncan spoke in favor of the bill, and at which only three chiropractors spoke in opposition.

After and during approval by this committee the bill developed into one of the foremost issues of the session. It was hard fought by opponents, and many petitions, letters, telegrams, and personal contacts were utilized in opposition. An equal or greater amount of representative citizens and groups evidenced support. The result was a situation in which the Senate for political expediency chose not to vote on the merits of the proposal. This was accomplished by refusal of the calendar committee to bring the measure to debate, and it thus died on the calendar shortly before adjournment.

GOLF VS. TRAPS

The following official "call to arms" has been issued by the Kansas Medical Golfing Association:

"For several years the Kansas Medical Golfing Association has trudged and cussed its way around the annual tournament golf course. For years its ranks were torn by internal strife on that one day a year when its members swung clubs viciously, sliced deeply and desperately, hooked with ferocity and banged out booming and puny drives in their war on par and Dr. Zilch of Podunk. (That guy has always overrated himself as a golfer.) Then at the close of the day's campaign the warriors sat down to a banquet on the eve of the Kansas Medical Society's state convention and pledged a year's armistice. Some ate crow, some ate the dove of peace, some paid attention to their food, and a general good time was had by all.

This year at Salina, however, it's going to be different. A group of imposters who call themselves sportsmen has horned in on the festivities. As they watched the growing success of the golfing association the green eyed monster of jealousy began sapping the sporting blood of the group's members, until this year they brought pressure to bear and arranged a dual tourney with the golfers. They're trapshooters! Hoot mon, 'tis an insult to the ancient and royal game of golf. Everybody knows we've got too many traps on our golf courses as it is, and everybody knows what difficulty we have keeping our traps shut in the bunkers.

These trapshooters are going to spend the entire day merely shooting at little pieces of clay, small, defenseless round disks, and then sit in at the banquet and boast about their scores. Scores—we of the golfing association can show 'em some scores. Why we've got members who can go up to the 130s under pressure.

Trapshooters, bah—why they only shoot birdies, clay ones at that, while we golfers shoot birdies, buzzards, eagles and twelves.

We're going to shoot the works, though, at Salina, May 7, and give these poor misguided trapshooters a royal welcome.

And that's the purpose of this notice. We'll need all hands to hold our own with this armed band of clay pigeon despoilers, so all you golfers be on hand early with your war clubs and plenty of ammunition. At the tournament proper we may be at a slight disadvantage, insofar as they'll be armed with guns, but at the banquet table we're a ten to one shot. We've been practicing for years."

MEMBERS

Dr. Athol Cochran, Pratt, has been selected as Pratt county health officer to serve for the ensuing year.

Mac Cahal, executive secretary of the Sedgwick County Medical Society, who was injured in a motor car accident near Topeka on February 26, recently was able to return home, and is recovering satisfactorily.

Dr. Ralph R. Melton, Halstead, is making preparations to open an office in Marion. He will take a room in the Wheeler Building and expects to be ready for practice the first of July.

Dr. David F. Parker, Tonganoxie, has been appointed prison physician at the Kansas penitentiary at Lansing, and will also serve as physician for the Industrial Farm for Women. Dr. Parker wil also have an office in Lansing.

Drs. W. A. Smiley, W. A. Carr and Robert Carr will occupy the new offices in the Home State Bank Building, Junction City, as soon as the remodeling work has been completed.

Dr. and Mrs. Maurice Snyder, Salina, were seriously injured in an automobile accident near Manhattan, Saturday evening, March 30. Dr. Snyder suffered a fractured thigh, and Mrs. Snyder was badly cut and bruised.

A request has been recently received from Copenhagen, Denmark, for a copy of Dr. Thomas G. Orr's article on "Gas Bacillus Infection Following Subcutaneous Injection of Salt Solution" which appeared in the June, 1934, issue of the Journal.

DEATH NOTICES

Dr. C. F. Bucklin, 67 years of age, died in Sawyer the morning of March 16. He was born in Sudbury, Vt., in 1868, graduated from the College of Physicians and Surgeons at Keokuk, Iowa, in 1896, settled in Sawyer in 1897 and started his practice which he continued actively until around the first of March. He was a member of the Pratt County Medical Society.

Dr. D. E. Clopper, 62 years of age, died at Providence Hospital, Kansas City, on March 15. He was graduated from the University Medical College of Kansas City in 1896 and started his practice in 1901. He was a well-known physician in the Argentine district for more than thirty-five years and a member of the Wyandotte County Medical Society.

Dr. C. A. Milton, 82 years of age, died at his home in Dodge City, March 2. He went to Dodge City a year after graduating from the Rush Medical School in 1882 and entered into partnership with Dr. T. L. McCarty, the first man of the medical profession to practice in Dodge City. He was very active in civic work and was responsible in a large way in obtaining the Dodge City Carnegie library. He later formed a partnership with Dr. W. O. Thompson. He retired from active practice in 1907.

Dr. Harrison H. Norris, 73 years of age, died in Whitewater on March 17 after serving as physician in

that community for the past fifty years. He was born in Morehead, Ky., and moved to Peabody with his parents at the age of nine years. He studied medicine at Eclectic Medical College, at Cincinnati, Ohio, and was graduated in 1885. After graduation he located in Annelly, and later moved to Whitewater where he continued his practice until his death. He was a member of the Harvey County Medical Society and had served as president of the organization.

Dr. Benjamin F. Roe, 63 years of age, died in Chetopa on February 17 of coronary thrombosis. He was a graduate of the University Medical College of Kansas City in 1908. He was a member of the Labette County Medical Society.

DEATH OF DR. FRANKLIN H. MARTIN

Dr. Franklin H. Martin, 77 years of age, died in Phoenix, Arizona, on March 7. He was born at Ixonia, Wisconsin, and was graduated in medicine from Northwestern University, in 1880. In 1888 he was one of the founders of the Post-Graduate Medical School, the first in Chicago, and in 1905 founded "Surgery, Gynecology and Obstetrics," one of the greatest journals of its kind in the world, and of which he has been the one and only editor. He was the active directing head of the American College of Surgeons, and served in the capacity of president in 1928-29. His professional interests centered in gynecology, in which he did a great deal of research, and especially in ovarian transplantation. He was one of the notable figures of American medicine.

BOOK REVIEWS

BODY MECHANICS. Joel E. Goldthwait, M.D., Lloyd T. Brown, M.D., Loring T. Swaim, M.D., and John G. Kuhns, M.D., Boston. 1934. Published by J. B. Lippincott Company, Philadelphia. 281 pp.

The manuscript represents over thirty years of continuous thought by one of the outstanding authorities on this particular subject. The book was really expected long before this, and will certainly fill an important place in modern medical thought.

The authors point out certain general characteristics of the human body, and the influence these may have on the body as a whole. They then go on to show how poor Body Mechanics may affect almost every organ in the body—and the part this may play in the actual production of disease. It seems incredible that poor Body Mechanics should affect arthritics; still more incredible that it should have any bearing at all in diabetes. Yet after one follows the line of thought presented in the book, one realizes that this is not only a possibility but a probability.

Each group of diseases is discussed, and the effect of poor Body Mechanics noted. Anatomical and physiological features are briefly mentioned in a general way.

The treatment advocated is the usual type followed in orthopedic surgery, consisting in the main of proper support and muscle re-education. A series of case reports illustrate the fundamental principles outlined, and a rather complete bibliography completes the monograph.

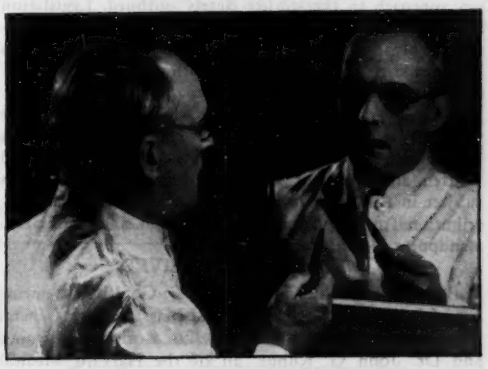
It is well written, and the contents will startle the uninitiated in the problems presented.—M.E.P.

THE CRIPPLED AND THE DISABLED. Henry H. Kessler, M.D. 1935. Published by Columbia University Press, New York City. Price $4.00. 337 pp.

This book represents a remarkable survey of the whole field of rehabilitation, and includes almost every physical

(Continued on Page 170)

Please give yourself this good advice, Doctor



IN ASSUMING responsibility for your patients' health and well-being, you may be overlooking *your own* physical condition. You work hard—harder than most of us. Your health is even more important than your patients'. You, more than anyone else, Doctor, need to keep yourself in good condition.

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phase of the subject. The child cripple, the military, industrial and chronically diseased cripple, as well as the blind, the deaf and the dumb, all are given separate chapters.

A concise but excellent history is given, and the modern approach to the subject clearly outlined. Legislation affecting the disabled is considered not only in this country but also in foreign countries. The progress which has been made to date, and the limitations still to be overcome are presented.

The key-note stressed is the ability to enable the physically handicapped to not only cease being dependents but to actually become wage earners. The book is well written, and by one of the outstanding authorities on this subject in this country. All in all it is an excellent contribution from a sociological as well as a humanitarian standpoint.—M.E.P.

NEW BOOKS RECEIVED

BODY MECHANICS by Dr. Joel E. Goldthwait, member of board of consultants at the Massachusetts General Hospital; Dr. Lloyd T. Brown, Dr. Loring T. Swaim, and Dr. John G. Kuhns, all of the Harvard Medical School. Published by the J. B. Lippincott Company, Philadelphia, at $4.00 per copy.

THE NERVOUS PATIENT by Dr. Charles Phillips Emerson, research professor of medicine, Indiana University, Indianapolis. Published by the J. B. Lippincott Company, Philadelphia, at $4.00 per copy.

PRINCIPLES AND PRACTICE OF PHYSICAL DIAGNOSIS by Dr. Robert F. Loeb, associate professor of medicine, College of Physicians and Surgeons, Columbia University, New York, and Dr. George J. Farber. Published by the J. B. Lippincott Company, Philadelphia, at $2.00 per copy.

WHAT YOU SHOULD KNOW ABOUT HEART DISEASE by Harold E. B. Pardee, associate professor of clinical medicine, Cornell University Medical School. Published by Lea and Febiger at $1.50 per copy.

USEFUL DRUGS, Ninth Edition. Edited by Dr. Robert A. Hatcher and Dr. Cary Eggleston. Published by American Medical Association at sixty cents per copy.

THE ROMANCE OF EXPLORATION AND EMERGENCY FIRST-AID FROM STANLEY TO BIRD. Published by Burroughs Wellcome and Company.

FEMALE SEX PERVERSION by Maurice Chideckel, Baltimore, Md. Published by the Eugenics Publishing Company, New York, at $6.00 per copy.

PHYSICAL DIAGNOSIS, Seventh Edition, by Dr. Warren P. Elmer, associate professor of clinical medicine, Washington University School of Medicine and Dr. W. D. Rose, late associate professor of medicine in the University of Arkansas, Little Rock, Arkansas. Published by the C. V. Mosby Company at $8.00 per copy.

METHODS OF TREATMENT, Fifth Edition, by Dr. Logan Clendening, clinical professor medicine, medical department of University of Kansas. Published by C. V. Mosby Company, St. Louis, at $10.00 per copy.

DISEASES OF THE SKIN, Ninth Edition, by Dr. Richard L. Sutton, professor of dermatology, University of Kansas school of medicine and Dr. Richard L. Sutton, Jr., assistant in dermatology, University of Kansas school of medicine. Published by the C. V. Mosby Company, St. Louis, at $12.50 per copy.

PHYSIOLOGY IN MODERN MEDICINE, Seventh Edition, by Dr. J. J. R. Macleod, regius professor of physiology in the University of Aberdeen, Scotland. Published by the C. V. Mosby Company, St. Louis, at $8.50 per copy.

THE AUTONOMIC DISEASES OR THE RHEUMATIC SYNDROME by Dr. T. M. Rivers. Published by Dorrance & Company, Inc., Philadelphia, at $3.00 per copy.

THE 1934 YEARBOOK OF GENERAL THERAPEUTICS by Dr. Bernard Fantus, professor of Materia Medica, pharmacology and therapeutics, University of Illinois, College of Medicine. Published by the Year Book Publishers, Chicago, at $2.25 per copy.

MORBIDITY REPORT

New communicable disease cases in the state as compared with last month are reported by the Kansas State Board of Health as follows:

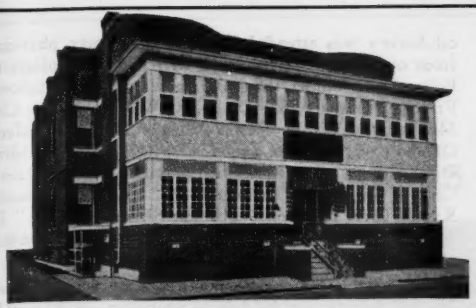
Disease	Month ending March 16	Month ending February 16
Measles	5684	4151
German Measles	3808	1553
Mumps	648	492
Chickenpox	465	538
Pneumonia	442	387
Scarlet fever	381	427
Whooping cough	298	225
Syphilis	107	131
Influenza	91	200
Tuberculosis	66	57
Gonorrhea	64	74
Smallpox	52	28
Diphtheria	42	40
Pink-eye	19	1
Meningitis	11	12
Cancer	8	4
Typhoid fever	4	5
Scabies	2	0
Vincent's angina	1	3
Undulant fever	1	2
Poliomyelitis	1	1
Tetanus	1	0
Tularemia	0	3
Encephalitis	0	2

COUNTY SOCIETIES

The Cowley County Medical Society held a meeting March 7, in Arkansas City and the main address was given by Dr. H. A. Mercer, Arkansas City, with discussion by Dr. R. W. James, Dr. H. H. Jones, and Dr. Bessie Rehwinkel, all of Winfield.

Approximately sixty doctors and their friends attended the dinner meeting of the Central Kansas Medical Society on March 19 in Hays. Dr. F. L. Loveland, Topeka, and Dr. L. V. Dawson, Ottawa, were the principal speakers, their subjects being respectively "Health Insurance," and "Medical Care of Indigents." A decision was made that the society would follow the procedure adopted by the Franklin County Medical Society on indigent care and a Medical Economics Committee was appointed. Dr. O. A. L. Hennerich, Hays, Dr. W. F. Deal, Oakley, and Dr. L. V. Turgeon, Wilson, are members of this committee and sub-committees are to be appointed for each individual county, comprising the Central Kansas Medical Society.

(Continued on Page 172)



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A dinner meeting of the Crawford County Medical Society was held in Pittsburg on February 28. Dr. H. E. Morgan, Fredonia, spoke on "The Use of the Special Senses in Clinical Diagnosis;" Dr. L. W. Baxter, Joplin, Missouri, on "X-Ray in Diagnosis of Urological Conditions;" Dr. M. Jones, Joplin, "Clinical Pathological Diagnosis of Diseases of the Kidneys."

Dr. H. L. Chambers, Lawrence, gave a paper on "Socialization of Medicine" at a meeting of the Douglas County Medical Society in Lawrence on March 7.

At a dinner meeting of the Ford County Medical Society on March 8 at Dodge City, Dr. Ralph Fellows, Topeka, was the guest speaker, his subject being, "Modern Concepts of Dementia Precox." The paper was discussed by Dr. J. A. Dillon, Larned.

Officers elected to serve for 1935 in the Franklin County Medical Society are as follows: Dr. H. J. Terrill, Ottawa, president; Dr. W. L. Jacobus, Ottawa, vice president; and Dr. L. V. Dawson, Ottawa, secretary. At a dinner meeting in Ottawa on March 27, Dr. E. R. Deweese, Kansas City, Mo., and Dr. Arthur Hertzler, Halstead, were the main speakers. Approximately one hundred people attended from Franklin and the surrounding counties. Dr. J. F. Hassig, Kansas City; Dr. H. L. Chambers, Lawrence, and Dr. L. F. Barney, Kansas City were state society officials present at the meeting.

A meeting of the Tri-County Medical Society was held in Newton March 4 with members of the Marion, McPherson, and Harvey County Medical Societies present for the dinner and the business meeting following. Dr. E. C. Padgett, Kansas City, Mo., read a paper on "Carcinoma of the Face, Mouth and Jaws," and Dr. F. Helwig, Kansas City, Mo., presented a paper on "Water Balance" illustrating his talk with slides.

Members of the Mitchell County Medical Society elected the following officers for 1935: Dr. H. B. Vallette, Beloit, president; Dr. H. L. Collins, Beloit, vice president; Dr. Ward Weltmer, Beloit, secretary-treasurer; and Dr. Hugh A. Hope, Hunter, delegate to the state meeting.

Dr. E. C. Duncan, Fredonia, spoke on "Public Welfare" at a meeting of the Montgomery County Medical Society on March 15 at Independence. A motion picture showing the technique of the manufacture of insulin was an added feature on the program.

The Neosho County Medical Society met at the home of Dr. L. D. Johnson, in Chanute on March 6, and Dr. E. C. Duncan, Fredonia, was the guest speaker.

At a meeting of the Reno County Medical Society on March 1 in Hutchinson, physicians from Harvey, McPherson, Rice, Barton, Pratt, Kingman, Pawnee, Edwards, Stafford and Ford counties were guests of the society. The principal speakers on the program were Dr. Ralph Major, Kansas City, who spoke on "Hippocrates and the Isle of Cos" and Dr. D. G. Leitch, Kansas City, who spoke on "Pathology of Sudden Death from Heart Disease."

Dr. C. C. Nesselrode, Kansas City, and Dr. Fred W. Angle, Kansas City, Mo., presented a scientific program for members of the Saline County Medical Society in Salina on March 14 at a dinner meeting.

The Sedgwick County Medical Society held a dinner meeting on March 5 in Wichita with Dr. Thomas G. Orr, Kansas City, as the principal speaker.

Members of the Shawnee County Medical Society met April 1, in Topeka with Dr. L. S. Nelson, Salina, as the guest speaker. His subject was "Skull Fractures."

The quarterly meeting of the Southeast Kansas Medical Society was attended by more than forty physicians from over a wide territory on March 14 in Coffeyville. Following a dinner the program was given as follows: Principal speakers were Dr. O. R. Withers, Kansas City, Mo., who talked on "Nasal Allergy;" Dr. Roy Balyeat, Oklahoma City, spoke on "Therapeutic Value of Iodized Oil, Used in Conjunction with Specific Desensitization in Case of Intractable Asthma;" Mr. Knox P. Lancaster, Kansas City, Mo., on "The Far-Sighted Doctor;" Dr. Sam Roberts, Kansas City, on "Non-Surgical Treatment of Sinus Diseases."

The regular meeting of the Washington County Medical Society was held in Washington, on March 12. Following the dinner Dr. Henry D. Smith, Washington, presented a paper on "Cardiac Arrhythmias in Childhood."

Dr. P. M. Krall and Dr. F. E. Angle, both of Kansas City, were the principal speakers on the program of the meeting on March 6 of the Wyandotte County Medical Society. Their subjects were respectively "Electrocardiography in Myocarditis" and "Electrocardiography in Arrythmias." At the meeting on March 20 Dr. W. J. Feehan, Kansas City, spoke on "Emergency Treatment of Simple and Compound Fractures." Dr. M. A. Walker and Dr. W. H. McKeen, both of Kansas City, opened the discussion.

At a meeting held in Hiawatha on March 14 representatives from Brown and Doniphan in Kansas and Richardson in Nebraska organized a District Society whose object is to hold quarterly meetings at which the speakers who have been appearing before each small group may be enjoyed by larger numbers. Dr. W. G. Emery, Hiawatha, was elected chairman and Dr. Edw. K. Lawrence, Hiawatha, secretary-treasurer. The first meeting was held the evening of April 11. Dr. O. W. Davidson, Kansas City, discussed the plans of the state Medical Economics Committee in regard to insurance or state medicine.

KANSAS MEDICAL AUXILIARY

The Central Kansas Medical Auxiliary held a district meeting in Hays the afternoon of March 19, 1935, at the home of Mrs. C. D. Blake. Several of the state officers were present and a dinner followed the business meeting.

The Neosho County Medical Auxiliary met at the home of Mrs. James A. Butin in Chanute on March 6 with Mrs. E. C. Duncan of the Wilson Medical Auxiliary as a guest.

At a meeting of the Wilson County Medical Auxiliary on February 11 at the home of Mrs. W. H. Young, Mrs. E. C. Duncan gave a report of the State Board meeting held recently, and a paper on "The First Twelve Years of the Medical Auxiliary." Members present at the meeting were Mrs. B. P. Smith, Neodesha; Mesdames A. C. Flack, E. C. Duncan, H. E. Morgan, W. H. Young, Fredonia, and Mrs. Flossie Smith was an additional guest.

The Wyandotte County Medical Auxiliary held a meeting on February 21 at the home of Mrs. H. L. Regier, Kansas City, for the purpose of electing officers to serve during 1935. The following officers were elected: Mrs. L. B. Spake, president; Mrs. Donald Medearis, vice president; Mrs. Lewis Angle, secretary, and Mrs. O. W. Davidson, treasurer, all of Kansas City. Chairmen for the standing committees were announced by Mrs. Spake as follows: Mrs. C. E. Coburn, Courtesy; Mrs. H. L. Regier, Hospitality; Mrs. T. G. Dillon,

(Continued on Page 174)

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The Auxiliary luncheon at the Salina meeting will be held at the Marymont College. The meetings of the Board and Council will be held in the Masonic Temple. This marks the tenth anniversary of the Auxiliary and the luncheon is open to all members and their friends.

EXCHANGES

The public is aware of and certainly interested in the lack of agreement between the medical profession and the press upon the subjects of news and advertising. From time to time developments arouse hope among newspapermen that some way of improving existing conditions eventually may be found.

The press is happy to note this recognition of the value of advertising printed in the Journal of the Kansas Medical Society for February:

We are glad to hear thru different sources that the members of The Kansas Medical Society are favoring products advertised in the Journal. Our paper is supported by the advertisers and their support by the readers will induce them to renew their contracts. This also will be good argument for our business manager to use in inducing other reputable firms to secure space. Increased income will permit the Journal to increase its size and to furnish cuts for illustration without charge to our contributors.

Newspaper men and others who are informed about advertising have no doubt the use of the advertising columns of the society's Journal is profitable for both the advertisers and the members of the profession. The newspaper men also believe that those who practice medicine and those who need professional services would benefit thru the use of advertising columns of the press by doctors.

Perhaps the full use of the newspapers, for the benefit of both physician and patient, when it does come, will be by way of the news columns. Doctors use the same code of ethics to deny newsmen information of great or small importance, but having a public value, that they use in refusing to advertise.

In the column next to the article in which the value of advertising is acknowledged, the February Journal also carries an article from the New England Journal of Medicine, discussing methods by which publicity might be obtained for medical affairs. The need for such publicity is recognized, the desire of the newspapers for accurate, reliable information is cited. A committee to consider and supply accurate information for the press is suggested.

In conclusion the article says:

Certainly we could be no worse off than we are at the present time. In an endeavor to interpret scientific news the average reporter or editor is as much in need of help as is the average doctor when it comes to understanding matters of publicity and newspaper practice. In an experience of some years with Boston papers the writer has had uniformly courteous consideration and real effort has been made by the press to meet the demands of accurate and ethical medical publicity. We must co-operate with the press or have only ourselves to blame for the raising of false hopes in thousands of sufferers and ultimately, thru too many false heraldings of the dawn, to see all medical discoveries viewed with skepticism.—February 28, 1935, Topeka State Journal.

A speaker, Dr. T. B. Rice, bacteriologist who addressed a meeting of the Women's Auxiliary of the Wayne County Medical Society in January, caused some commotion (not among his immediate audience) for some alleged heterodox pronouncements on the subject of diet. He said a great deal that runs counter to advertising propaganda with which the laity are fed up by radio and by the various journals on housekeeping that go into the homes. The speaker received more than usual attention from the newspapers. In other words, his address was news. It was news that spinach was not the important article of diet that it is commonly held to be by the layman and particularly the laywoman. It was news that vitamins, while important, are overstressed and exploited by those with something to sell.

It is high time the food faddist receive a jolt. Professor Martin B. Rehfuss of Jefferson Medical College, in a recent address before the American Dietetic Association, is reported as saying, "Diet faddists have reached a point where they are a positive menace to the health of the community and an insult to the reasoning of intelligent men and women," and Professor Murphy of Harvard (Nobel prize in medicine) declared, "Undoubtedly they (the new diet fads) form one of the most pernicious publicity schemes available because they are publicity schemes for someone or something."

Vitamins are necessary for health. It would be difficult, however, in a normal regimen such as that on which our ancestry subsisted since the beginning of life upon the planet to avoid them, since they are present in the most common articles of food. Sir Walter Fletcher, an English nutritional chemist, speaking of Vitamin D, known as calciferol, the only vitamin it has been possible to isolate in pure crystalline form, says "a single ounce of it would suffice to give a full daily ration for a million growing children."

DEATH RATE FOR TUBERCULOSIS LOWER FOR 1934

According to statisticians of the Metropolitan Life Insurance Company who have been studying the mortality figures for the first quarter of the year, a large reduction in the tuberculosis death rate during 1934 is foreseen. Among the industrial population, it is expected that the death rate from tuberculosis will run about 60 per 100,000 for this year. During the first quarter of 1934, the rate among insured white persons was 51.2 per 100,000, which they claim is a "remarkable low figure." (Pennsylvania Medical Journal.)

ANNOUNCEMENTS

The American Medical Golfing Association will hold its twenty-first annual tournament at the Northfield Country Club in Atlantic City on Monday, June 10, 1935. Seventy trophies and prizes will be awarded in the nine events. All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A.M.G.A., and may write the Executive Secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. For further information write the American Medical Golfing Association, 4421 Woodward Avenue, Detroit, Michigan.

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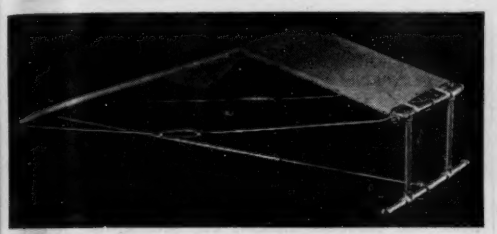

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Some Clinical Observations on the Influence of certain Hygroscopic Agents in Cigarettes.
Laryngoscope, 1935, XLV, 149-154*

SEE ALSO
Pharmacology of Inflammation: III. Influence of hygroscopic agents on irritation from cigarette smoke.
Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245*

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* **Reprint of papers from Laryngoscope 1935 XLV, 149-154 and from Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245.** ☐

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A multipara seven months pregnant with insanity showed negative test on three different occasions during the period of insanity. Insanity persisted until full term. This would need further investigation and experimentation when such cases are available. We would like to hear the reports of other laboratories concerning their cases of insanity.

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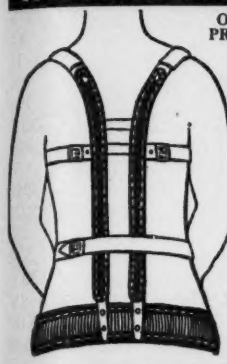

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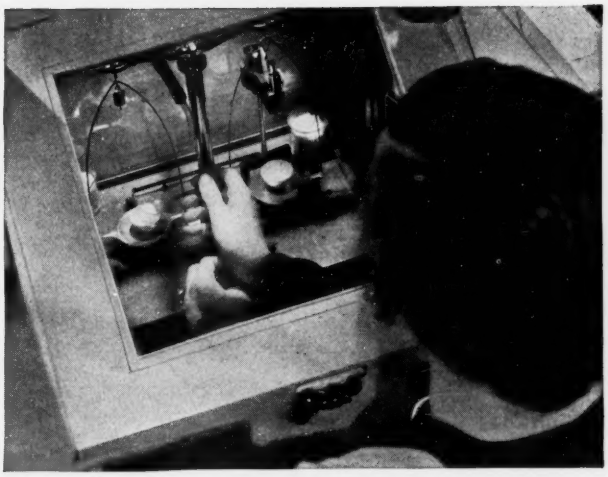

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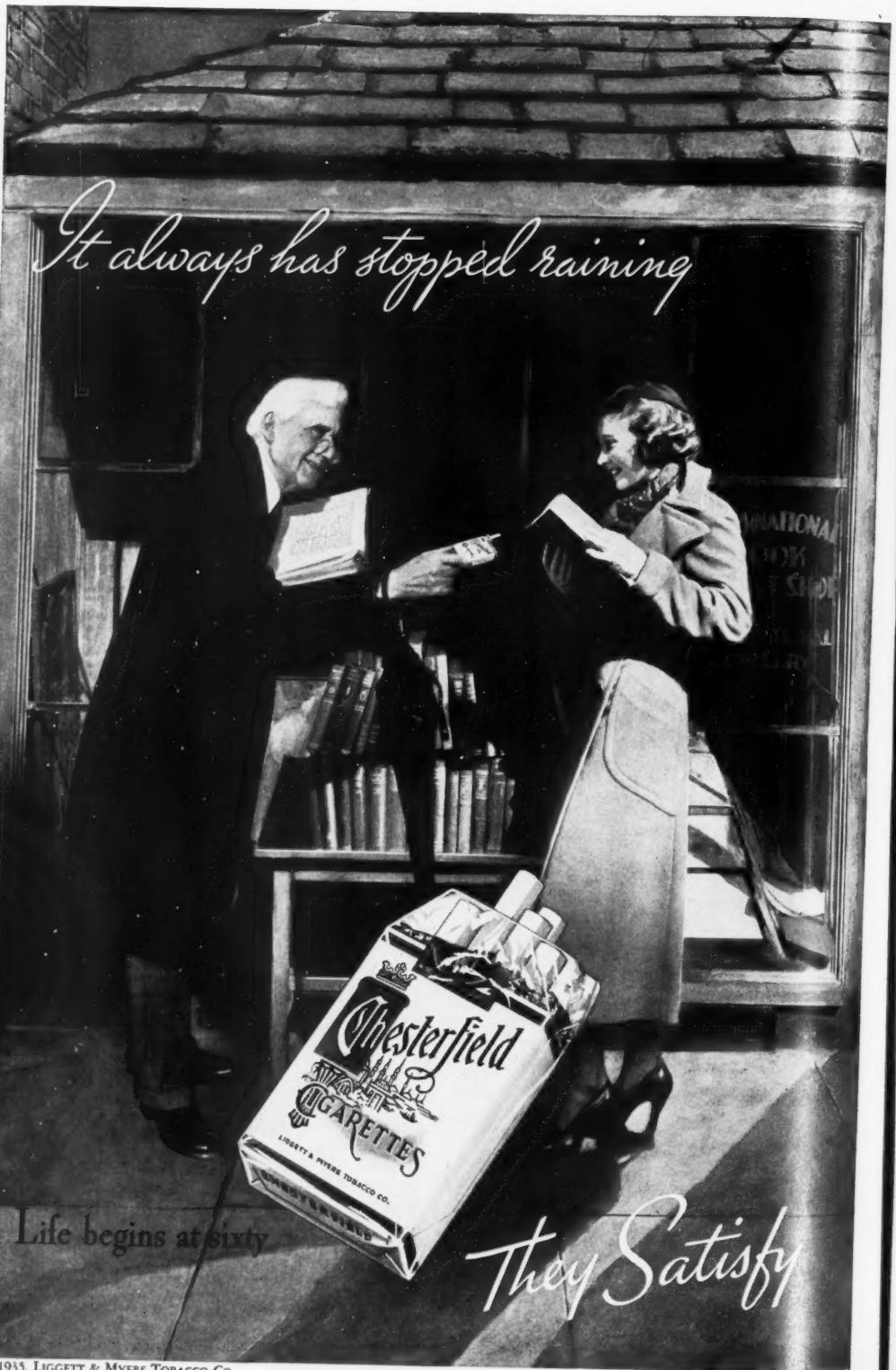

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